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THE
SIERRA CLUB BULLETIN

Volume IX

1913 - 1915

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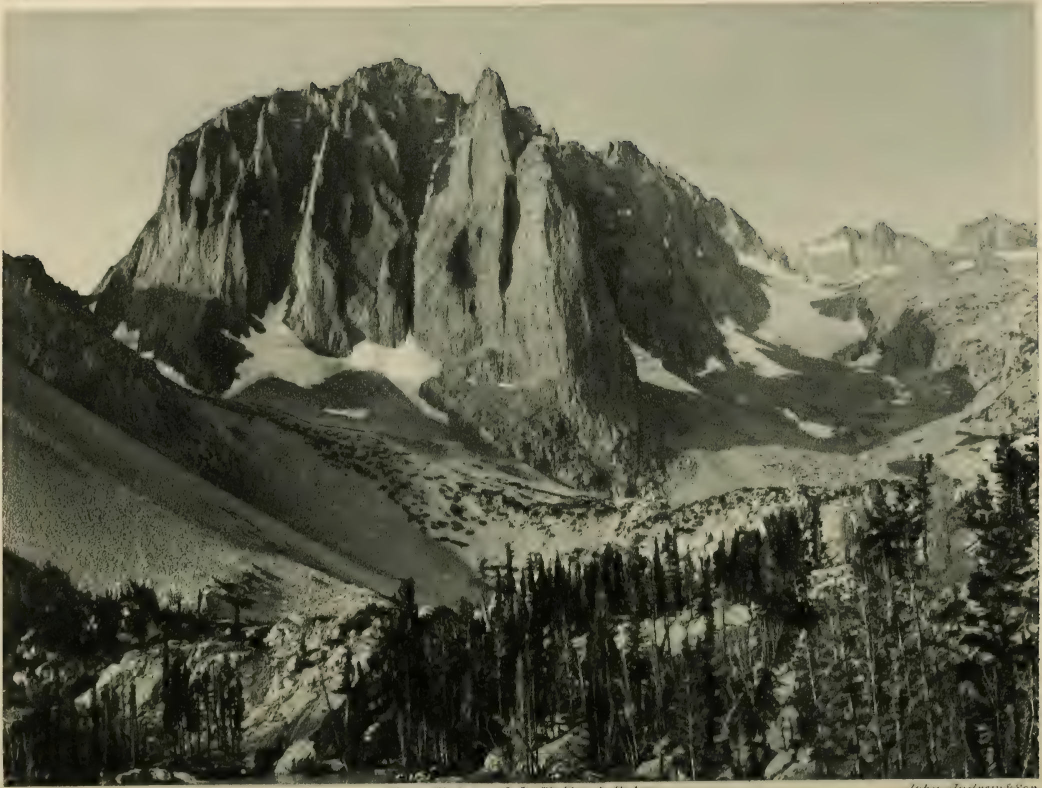
PLATE I.



Photogravure *From Photograph by Walter L. Huber* *John Andrew & Son*

TEMPLE CRAG, (13,016 FT.) BIG PINE CREEK, 2000 FT. CLIFFS.

NORTH PALISADE (14,254 FT.) IN THE DISTANCE.

SIERRA CLUB BULLETIN

VOL. IX SAN FRANCISCO, JANUARY, 1913 No. 1

MILESTONE MOUNTAIN AND A NEW KINGS-KERN PASS.

By WILLIAM EDWARD COLBY.

Milestone Mountain (13,643 feet) as seen at a distance from many viewpoints of the Upper Kern basin stands out from the sky line of the jagged Kings-Kern crest as if it were but a single splinter or spire pointing skyward. To all appearances it would seem unclimbable, and for this reason, I suppose, all the more attractive to the mountaineer.

We had awakened with the early dawn on a beautiful July day and the rising call announcing that this was the day appointed by the Sierra Club to climb the main Kaweah peak (13,816 feet), was prolonged in an amusing way, for before the chorus of human shouts had died out, it was taken up and continued for several minutes by the coyote inhabitants of Chagoopa Plateau, who must have howled themselves hoarse in their consternation over the unusual proceedings going on in this far-away wilderness.

Buckling on our armor, which consisted mainly of lunches and knapsacks, we strode out into the dense forest of foxtail pine and, with considerable regret over our all too short stay, left behind the beautiful campsite beneath the thick shelter of trees beside the shores of Moraine Lake, for many of us upon our descent from the summit were to knapsack on up to the head of the Big Arroyo and cross into the Kern-Kaweah. More than a hundred members of our party registered at the top that day. Others have described in these pages the glorious and commanding view to be obtained from this peak, towering as it does so centrally in the Upper Kern basin.* That night we camped in the last straggling grove of pines near the head of the Big Arroyo, just opposite where a deep notch in the cañon wall indicates the head of Deer Creek of the Kaweah watershed. Polished domes and turrets, innumerable rocky lake basins, huge erratics scattered everywhere as if the glacier had dropped them in a hurry, gave evidence of recent glacial occupation. The next day in crossing the divide we stood where we could look down into the amphitheaters of the Big Arroyo, Kern-Kaweah and Kaweah. Far below in the latter lay Lion Lake frozen over, with streaks of turquoise blue showing through the cracks in the ice. Descending by means of a steep chimney in the Kern-Kaweah wall,* we soon reached the junction of the stream which flows into the Kern-Kaweah from the Milestone Basin, and camped.

---

*See "The Kaweah Group," by the late Prof. Wm. R. Dudley, Vol. II, p. 185, and "With the Sierra Club in the Kern Cañon," by M. R. Parsons, Vol. VII, p. 23 of the SIERRA CLUB BULLETIN.

The next day our knapsack party of thirty visited the Milestone Basin, but instead of going on up into the Milestone Bow or cirque, we followed up the short left-hand or westerly branch of the stream and climbed a rather flat-topped peak (13,350 feet) on the Kings-Kern or Great Western divide, less than a mile to the southwest of Milestone Mountain. The cirque to the west of this peak on the Kings River drainage appalls one with its narrowness, the great height of its vertical walls, and the jagged crags that jut out from these walls. Assuring ourselves that there was no one below, we pushed some immense granite slabs over into the abyss and shuddered as we heard the tremendous reverberations that echoed up out of the depths and saw the huge flying fragments either bury themselves completely out of sight in the residual glacier far below, or go bounding down over its surface tearing up a veritable storm of ice and snow crystals that filled the air at the bottom like a cloud. Just to the west of this peak there is a low notch in the divide (12,000 feet) which promises to furnish the most fe[illegible] pack animals from the Kings River Cañon into [illegible] Basin. The slope on each side is not so abrupt but that a trail can readily be built up to it, and it will be infinitely easier to negotiate than either Harrison Pass (12,600 feet) or the unnamed pass (13,200 feet) near Junction Peak. The only obstacle thus far apparent is a long

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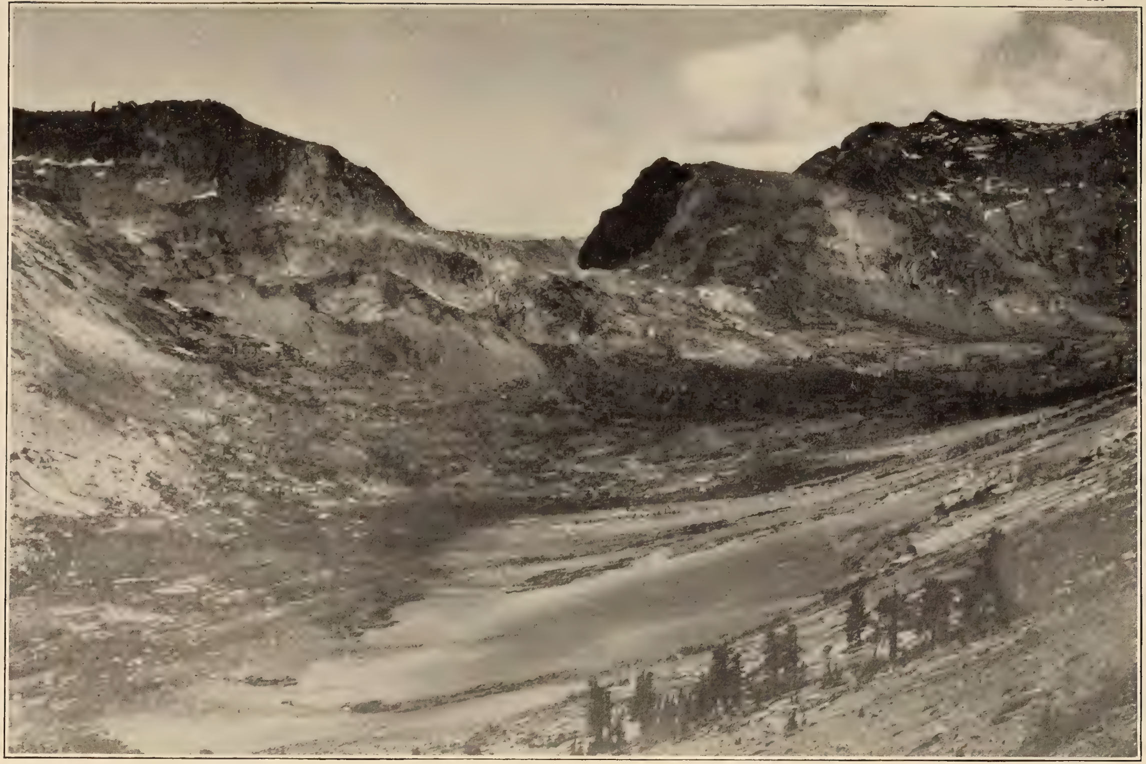
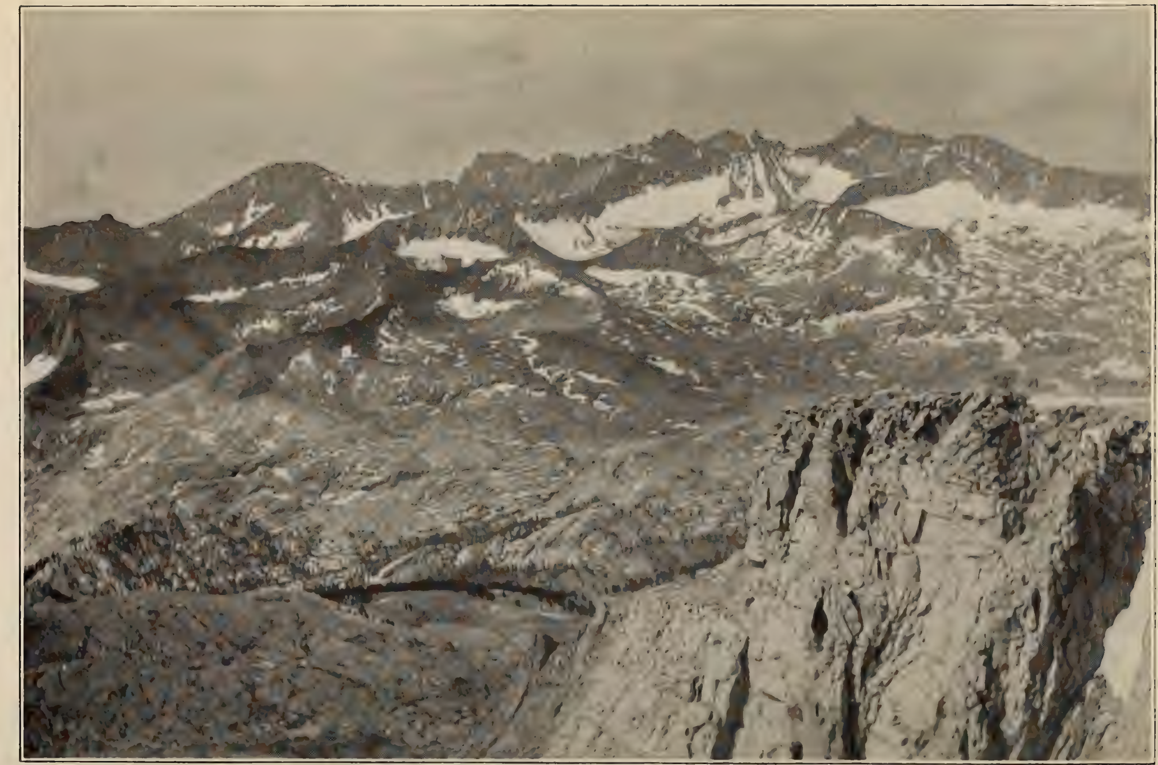
* An easier descent can be found by crossing into the Kern-Kaweah from the Big Arroyo farther to the south, but at a sacrifice of the magnificent scenery of the triple divide.

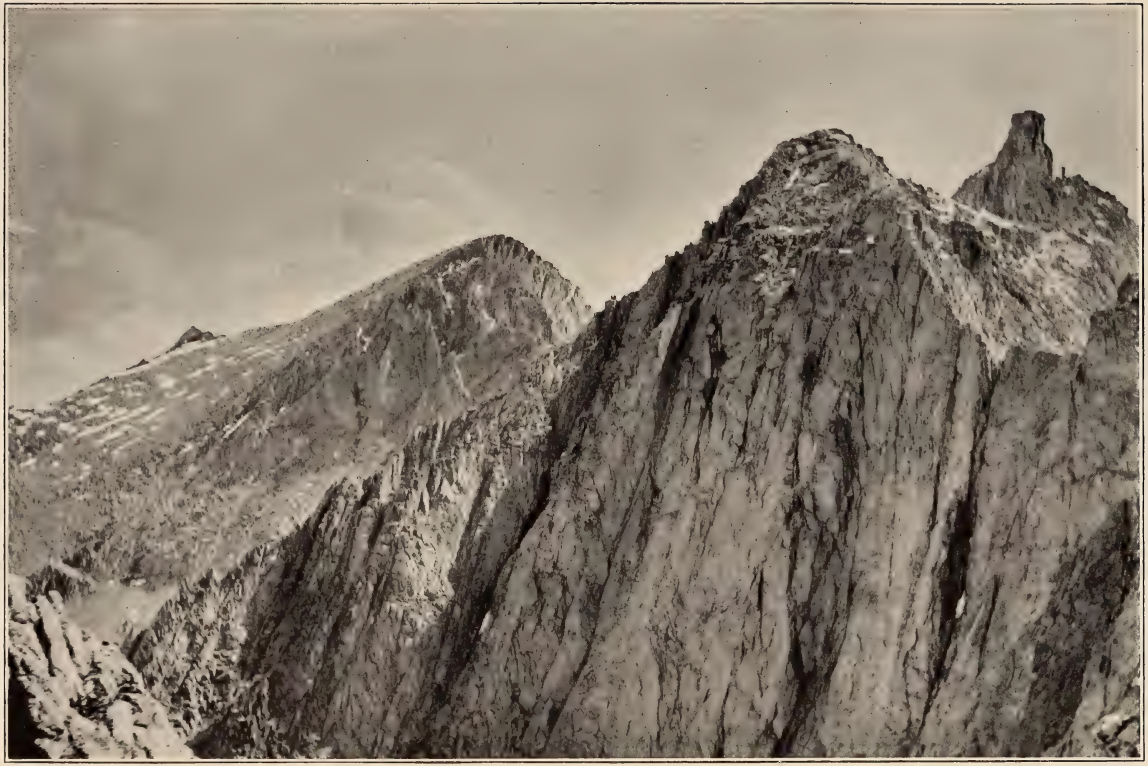


NOTCH IN BIG ARROYO WALL AT HEAD OF DEER CREEK.

Photograph by Francis P. Farquhar.

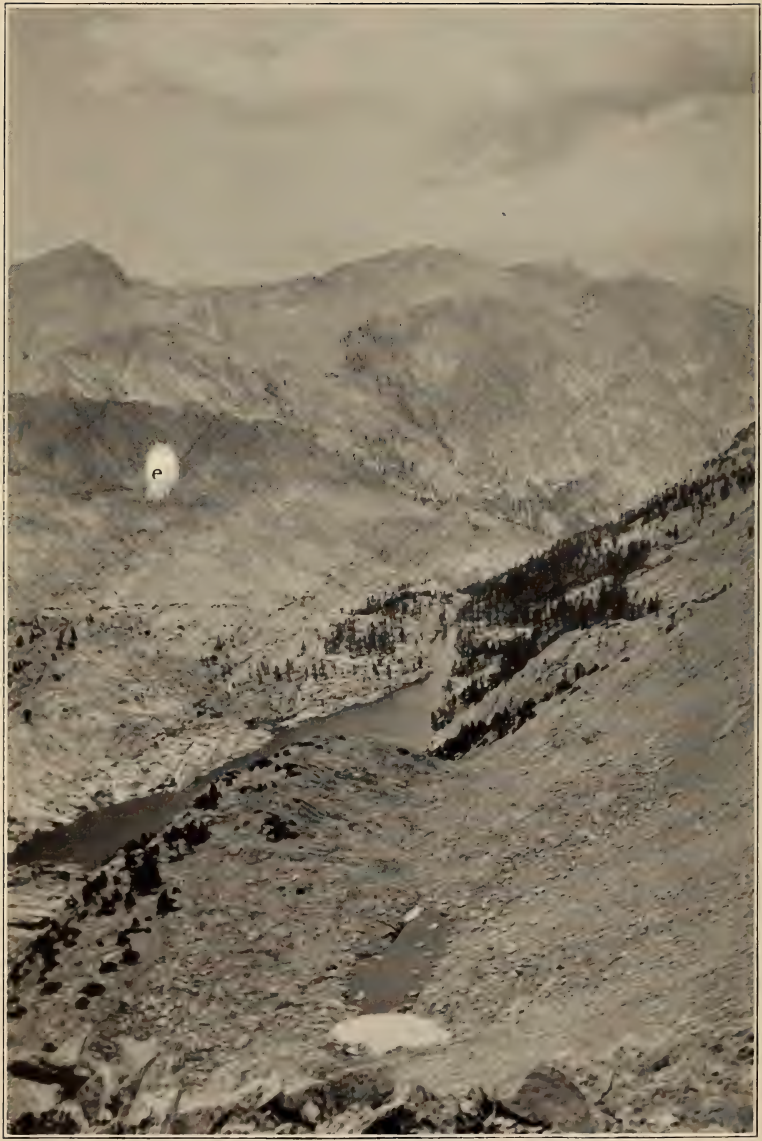


THE KAWEAH GROUP FROM MILESTONE BASIN.
Photograph by Everett Shepardson.



MILESTONE AND VERTICAL WALLS OF CIRQUE ON KINGS-KERN DIVIDE.

Photograph by Everett Shepardson.



NARROW LAKE IN CAÑON ON KINGS RIVER SIDE OF NEW PASS.
Photograph by Everett Shepardson.

narrow lake which fills up the cañon below on the Kings River side.*

The feasibility of a route around the lake and down this cañon to a point of juncture with the trail that now follows up the easterly branch of the Roaring River needs to be thoroughly investigated. After our Outing was over, Mr. Abernathey, of Porterville, at my suggestion, visited it, taking burros from the Kern side up the Kern-Kaweah to the very summit of the pass. He examined a route down the Kings side and reported it feasible to build a trail with the expenditure of considerable money. Our trail-building crew, which traveled in advance of the main party this year, made quite a beginning on a trail from Junction Meadow on the Kern up into the Kern-Kaweah. A trail through this pass would bring Mount Whitney two days nearer Kings River Cañon and open up a magnificent region along the Kings-Kern divide.

I had always been attracted to the Kern-Kaweah and Milestone Bow region ever since reading the late Professor Dudley's account of his visit there,† and our view that day of Milestone Mountain from the summit of the unnamed peak which forms a portion of the westerly wall of the cirque of Milestone Bow, stimulated my desire to attempt its ascent. On returning to our Kern-Kaweah camp that afternoon I persuaded Mr. Robert M. Price and Mr. Francis P. Farquhar to remain there overnight with me and start out early the next morning with Milestone as our goal.

The early dawn found us climbing up out of the Kern-Kaweah Cañon, following close to the stream which tumbles down from Milestone Basin. After the first steep ascent the stream flows for some distance along the nearly level floor of a "hanging valley" carpeted with thick plushy alpine sedge grass. Passing up this valley some distance, we looked back over its level floor and winding stream with striking groups of foxtail pines standing guard on each side. The foreground furnished a picturesque setting for the dark

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* This lake does not appear on the United States topographical sheet.

† "The Kaweah Group," Vol. II, p. 185, SIERRA CLUB BULLETIN.

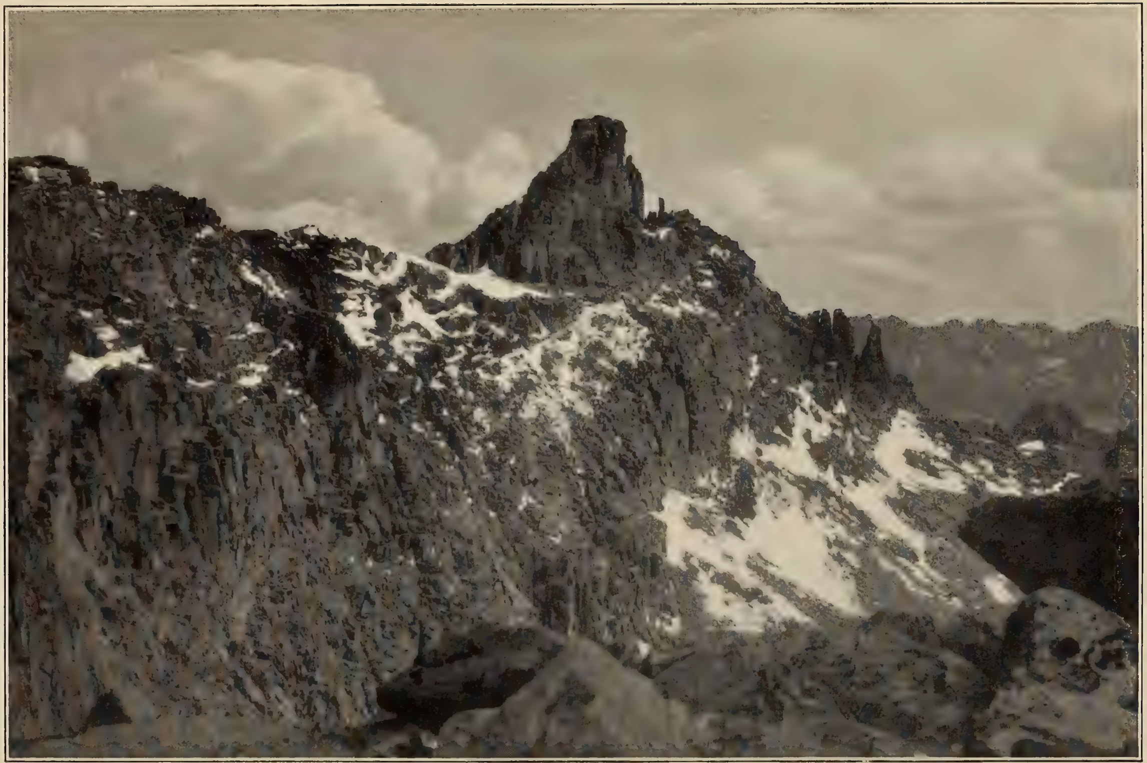
Kaweah peaks streaked with snow, which towered up far across the Kern-Kaweah Cañon into the rosy light of early morning. It might well have been the inspiration for William Keith's famous painting, "The California Alps."

Still following up the main stream we ascended into Milestone Bow, an immense cirque with stupendous walls on all sides. Milestone itself stands out prominently against the sky-line from the extreme head of the cirque, and is seen to be a jagged backbone of some length, instead of the narrow spire which it appears to be when viewed from either end of the ridge which forms it. We crossed the cirque following along a low rib of glaciated granite and started to climb the wall at the upper end of the cirque just below and to the left of the main peak. By selecting our way we found no trouble in ascending from one shelf to another, and only had to exercise care where melting snow of the previous day had flowed over the rounded surface and during the night formed a solid coating of glary ice.

We easily reached the base of the main peak, whose perpendicular walls towered directly above. I must assume the mistake of judgment which followed and which was the result of my too firm conviction of the difficult if not unclimbable character of the peak. The approach to the summit from either end of the serrated backbone which formed the main peak seemed impossible. As we had viewed from below the last cliff which rose some five hundred feet above us we had picked out several inclined ledges which crossed the face and which we felt afforded a feasible way of working up. With considerable effort and careful boosting up of the first two and hauling up of the last man we managed to negotiate one ledge after another until we found ourselves on a ledge not more than one hundred and fifty feet below the summit. At this point the summit actually overhung several feet and water from a small patch of melting snow on top dripped clear of the face above us. Unfortunately, we could find no feasible means of leaving this ledge and climbing higher. We were about to descend, in spite of the fact that the summit, but such a short distance away, proved most tantalizing, when I suggested that if Mr. Farquhar,

MILESTONE VIEWED FROM THE BOW IS A JAGGED BACKBONE.

Photograph by Francis P. Farquhar.



MILESTONE FROM THE UNNAMED PEAK ON THE WESTERLY WALL OF THE BOW.

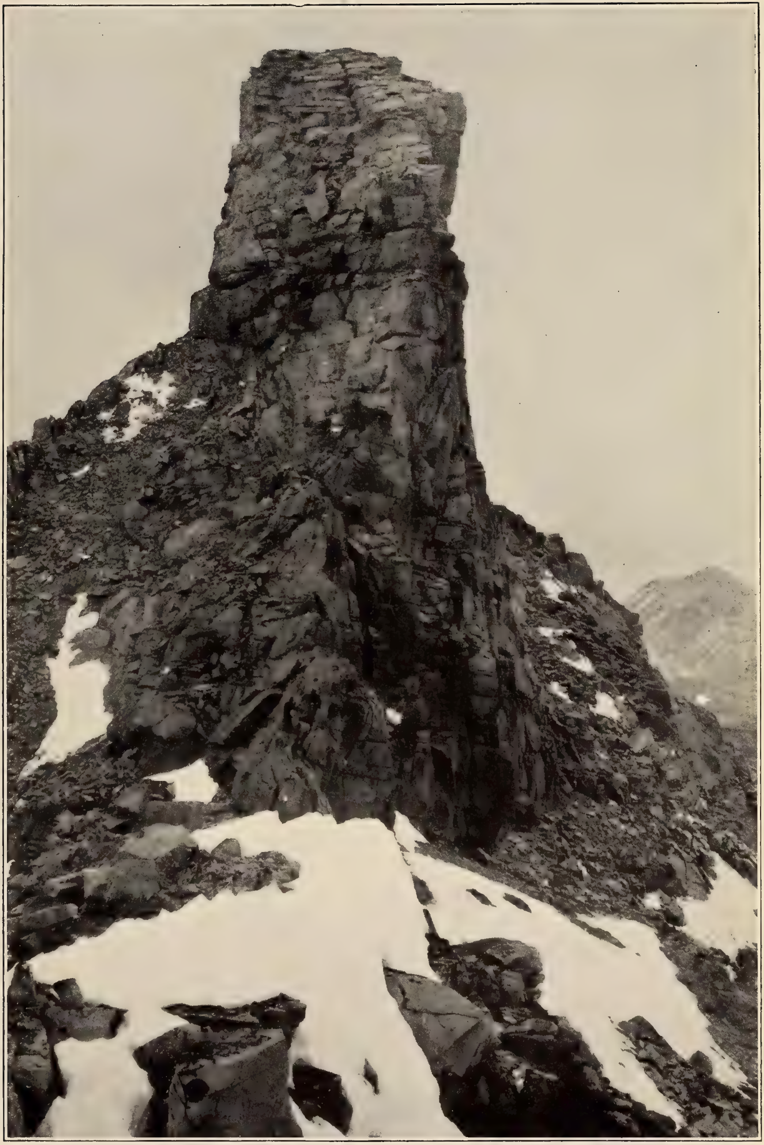
Photograph by Francis P. Farquhar.

who was the lightest member of the party, would venture, I would assist him up over a rounding projection which blocked the way at one end of the ledge, and possibly from above he might find a way out of our difficulty. He agreed to attempt it and after climbing onto my shoulders managed to get a footing on a little nub of granite which jutted out from the slightly sloping wall, and crawled up to a point which offered a more favorable foothold. Just as he was out of my sight and I thought that he had succeeded, he shouted to me to get out of the way and with such terror in his voice that I felt that he must be slipping, and I shouted back that I would do what I could to hold him. He kept repeating his command for me to get out of the way so that I managed to get back to a broader portion of the ledge on which I was standing, and informed him that I was safe, when a tremendous stone weighing half a ton fell from where he was and struck the narrow foothold which I had just left and bounded down hundreds of feet below. The smell of brimstone pervaded the air, due to the friction resulting from the first impact. Immediately the ledge occupied by Price and myself began to look all to narrow as a perch for sensible mortals. Where a moment before we had looked down the precipitous face of the cliff without flinching, we suddenly acquired a desire to hug as close to it as the ledge would permit, and the yawning depths below now seemed like a veritable chasm ready to engulf us if we made a move. I managed to get out again to where I had been before and helped Farquhar down. It seems that in reaching up for a hold he had placed his arm around what had every appearance of being a solid projection, but on throwing his weight on it, to his horror, it moved off its base. Fortunately he secured a firm hold with his other hand and bravely held the great weight from slipping further until I could get out from my position underneath. Our nerve had temporarily left us so we waited until it had partially returned and then set about descending the way we had ascended. It was surprising how much more difficult the dangerous points had become and how much more we relied on the rope I had with me.

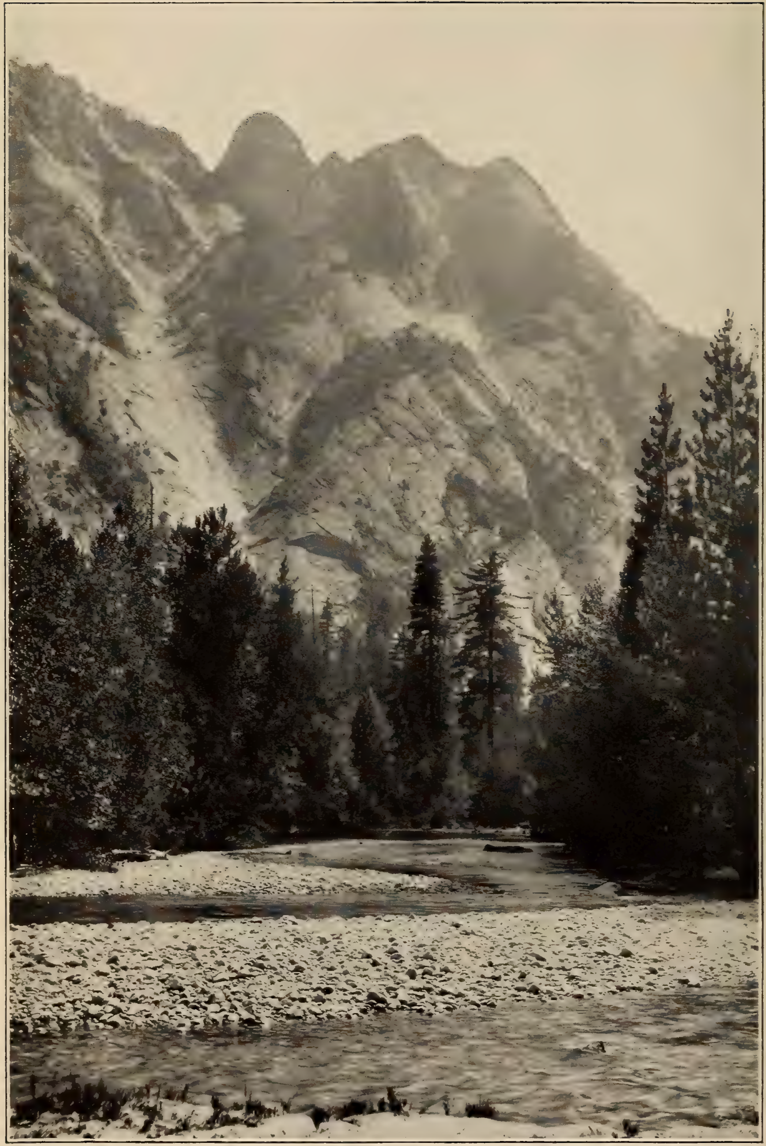
We reached the base of the main cliff and decided to see if another method of ascent were feasible. We found it easy to follow up the slope to the left along the base of the main cliff until we reached a chimney, partially filled with snow, which furnished a means of easy ascent to the main ridge that gave access to the summit. Having arrived on the Kings River side of the ridge we saw our mistake, for to reach the summit from that side only required careful work over the loose blocks and broken faces of the main peak. Shortly after nine o'clock we built a cairn and deposited the Sierra Club register. We found no record or evidence to indicate that a previous ascent had been made. The view was superb, commanding, as it did, the basins of the Kern-Kaweah and Upper Kern and Roaring River on the Kings River side. It was a clear day and we could see quite plainly Mount Ritter and Banner Peak more than eighty miles to the north, and most of the peaks of the main crest as far south as Mount Whitney and beyond. The summit of Milestone has a good many square feet of quite level space, but drops off perpendicularly and actually overhangs on almost all sides.

Following the route that we did finally, any mountaineer can safely climb Milestone. Several other members of our party, on learning of our success, made the ascent.

If the newly discovered pass proves as feasible as it would seem to be, when proper trails of approach have been built, this wonderful Milestone region will be one of the most attractive features of a trip from the Kings into the Kern.



THE SUMMIT OF MILESTONE OVERHANGS ON ALMOST ALL SIDES.
Note figures near base of main peak.
Photograph by Francis P. Farquhar.



SCULPTURED CLIFFS IN TEHIPITE VALLEY—ANOTHER CALIFORNIA YOSEMITE TO BE VISITED BY THE CLUB IN 1913.

Photograph by Walter L. Huber.

LITTLE STUDIES IN THE YOSEMITE VALLEY.

By Francois E. Matthes.

IV. El Capitan Moraine and Ancient Lake Yosemite.*

It seems well nigh unbelievable in these days of enlightenment that so eminent a scientist as the late Professor J. D. Whitney should have seen fit to deny the former existence of glaciers in the Yosemite Valley. Said he in his famous old Guide Book: "A more absurd theory was never advanced than that by which it was sought to ascribe to glaciers the sawing out of these vertical walls and the rounding of the domes. Nothing more unlike the real work of ice, as exhibited in the Alps, could be found. Besides, there is no reason to suppose, or at least no proof, that glaciers have ever occupied the valley or any portion of it. . . ."

As a matter of fact, there are excellent reasons for believing that the Yosemite Valley was once invaded by ice, and the proofs of its glacial occupancy are abundant and indubitable. The wonder is that Whitney could have overlooked them.

The very shape of the valley, though-like, steep-sided, clean-cut; the great height of the hanging valleys from whose lips the thundering waterfalls pour; the giant stairway down which the Merced River tumbles in its descent from the Little Yosemite; these features are, on the face of them characteristically glacial, and impressively attest the great magnitude of the erosional work done by the ice.

But perhaps the skeptical reader would prefer evidences of a more tangible sort, more immediately linkable with the intimate form and habits of glaciers, and demanding less from the imagination in the way of appraisal of the capacity of glaciers to erode, a subject on which even those best qualified to judge are by no means united.

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* Published with permission of the Director of the United States Geological Survey.

Allow me to invite him to the floor of the Yosemite Valley, and, with our backs turned to the lofty hanging valleys and their eloquent cataracts, let us search for the less spectacular but more direct, and perhaps more convincing, proofs of ice work which there exist.

If we should set up a surveyor's level in the meadows opposite the Sentinel Hotel and thence run down the valley, taking careful elevations on the way, we would find the altitude to remain essentially unchanged for miles. Indeed, as far as the El Capitan bridge there is no appreciable fall to the valley floor, and the Merced River meanders dreamily, in lazily swinging, sandy loops and curves. At the El Capitan bridge, however, there is an abrupt change. The stream awakens, as if refreshed from its nap in the valley, and with quickened pace, dashes over riffles and churns among boulders, tumbling lustily like a youthful mountain torrent. Its fall becomes rapid, fifty to one hundred feet per mile, whereas above the bridge, in a distance of six miles, it descends only about six feet.

Evidently, the El Capitan bridge marks a critical point in the course of the river and a dividing line in the valley itself. Broad and level above the bridge, below it the valley can scarcely be said to have any floor at all. Even the Bridal Veil Meadows, which occupy the widest place, slant strongly toward the river, being a débris fan built by Bridal Veil Creek. Farther down, the valley sides close in from either side and the river lies constrained in the bottom of a narrow V.

What may be the cause of this abrupt change of scene at the El Capitan bridge? No doubt many of the readers of the BULLETIN have passed back and forth over that bridge, but probably few have taken careful notice of its peculiar location. The writer himself did not become aware of the significance of the site until after a sojourn of several months.

It was no mere whim that led Galen Clark to select that spot for a bridge. A strong ridge of boulders here lies athwart the floor of the valley, and it is across the gap in that ridge, worn through by the stream, that the bridge has been thrown.

South of the El Capitan bridge the grading of the wagon road has necessitated cutting away part of the ridge, but the huge boulders, of which it is largely composed, may be seen in the side of the cut. Climbing out of the road, one may follow the curving crest for a few hundred feet until it becomes lost in the coarse débris at the base of the Cathedral Rocks.

North of the river, the ridge runs west of the road, stretching across the valley for half a mile like a steep-sided, narrow-crested embankment. At first fully fifteen feet high, it gradually loses in height and prominence, and finally, toward the road forks, appears to die out altogether. However, it does not end here, but merely becomes buried under the toe of the huge débris slopes descending from the cliffs about Ribbon Falls.

Were this peculiar ridge, unique in the configuration of the valley floor, situated in the open so that its form stood out conspicuously above the surrounding flat, no doubt from the first it would have attracted attention; its significance would have been looked into and now would be common knowledge. As it is, dense thickets of pine and cedar effectually mask the ridge; most passers-by are not aware of its existence, and even some of the scientists who have studied the valley in detail have missed the feature and thereby the key to the recent geological history of the entire valley floor.

The boulder ridge in question is a typical glacial moraine; no experienced glacialist would for a moment hesitate in identifying it as such. It is a terminal moraine, properly speaking,—that is, a débris ridge of the sort which glaciers commonly build up at their fronts. All glaciers, as is well known, carry a considerable amount of rock débris derived from the floor and sides of the valleys through which they advance, and this material, as the ice melts away, is released at the lower end. While the front of a glacier is inherently subject to frequent oscillations, some years melting back, at other times advancing, there are nevertheless occasional periods of relative constancy during which the front remains stationary, or very nearly so. It is then that this ice-freed débris accumulates in the form of an embankment or morainic ridge, as it is technically termed. When, moreover, the period of quiescence follows immediately upon one of advance and pronounced erosional activity, during which the glacier heavily loaded itself with débris, the moraine is likely to assume proportions that will enable it to endure as a topographic feature of some permanence.

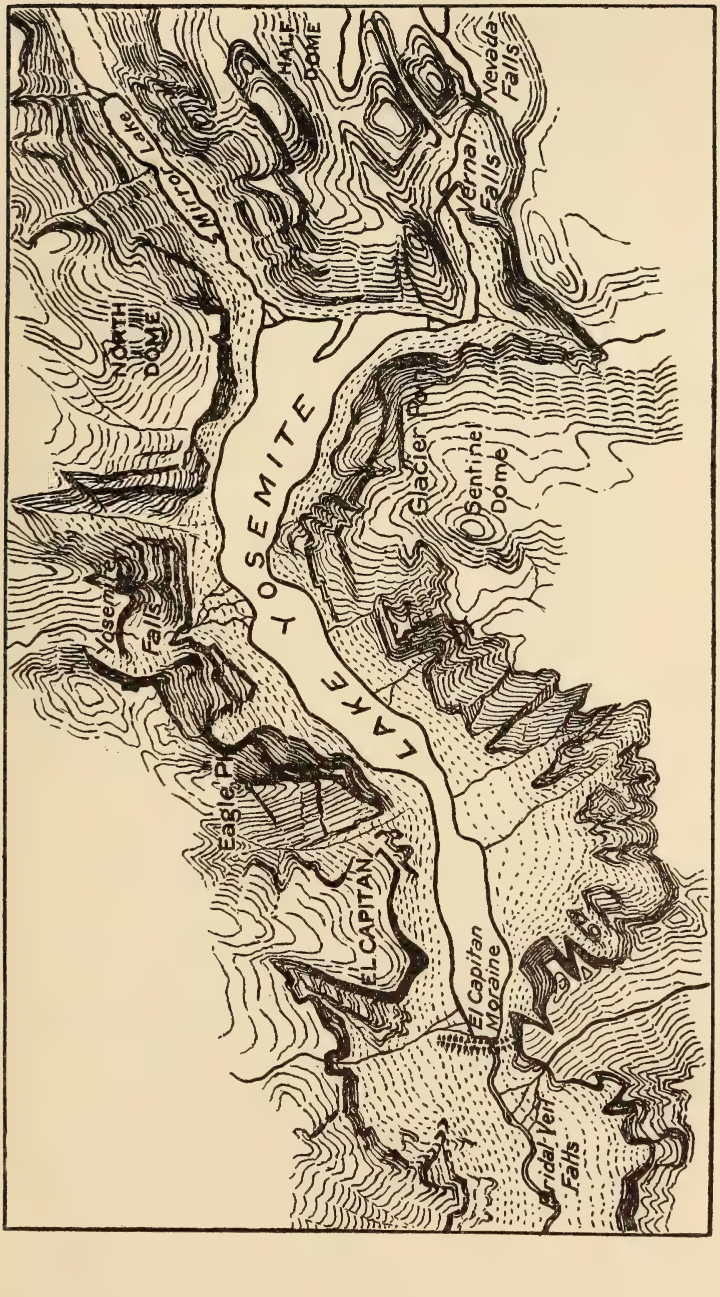
This, in fact, is what occurred in the Yosemite Valley. When the ice front receded for the last time—there were several separate glacial epochs—it made a number of minor readvances, following one upon the other like so many gradually dying pulsations. Each of these readvances left a separate moraine, and accordingly a number of such ridges are found spaced at intervals across the valley floor. All of them are situated in the lower half of the valley, and the moraine at the El Capitan bridge, which may appropriately be called the El Capitan moraine, is the uppermost, the youngest of the series.

It is also the strongest, the most perfectly preserved of all. The other moraines to-day are represented only by truncated fragments, their major portions having been broken down and swept away by the swollen river. Around the broken end of one of these ridges, projecting from the extreme northwest corner of the Cathedral Rocks, the wagon road swings as it bends southward to the Bridal Veil Falls.

The El Capitan moraine, it appears, not only escaped the partial demolishment that overtook its brethren, but, by virtue of its strength and peculiar situation, became a factor of importance in the post-glacial remodeling of the valley bottom. Stretching across the valley from wall to wall, like an unbroken dam, it ponded the waters behind it, and, as the ice melted back, transformed the upper Yosemite Valley into a lake.

This sheet of water,—Lake Yosemite, it may aptly be called,—like most lakes of a similar origin, was not destined to endure. No sooner had it come into existence than the Merced River, turbid with débris from the glaciers farther up, proceeded to build a delta at the upper end, and this delta, slowly but inexorably advancing, in time wholly extinguished the lake.

The manner in which the filling was accomplished one may to-day watch in Mirror Lake. Already reduced from a sheet of water more than a mile long, this little lake, famous for its reflections, is annually being diminished in area by an appreciable amount through the rapid forward growth of the delta of Tenaya Creek. Measurements of the delta front for a few consecutive years would afford a basis for an estimate of the length of time that the lake is likely to continue to delight the visitor with its beautiful reflections.

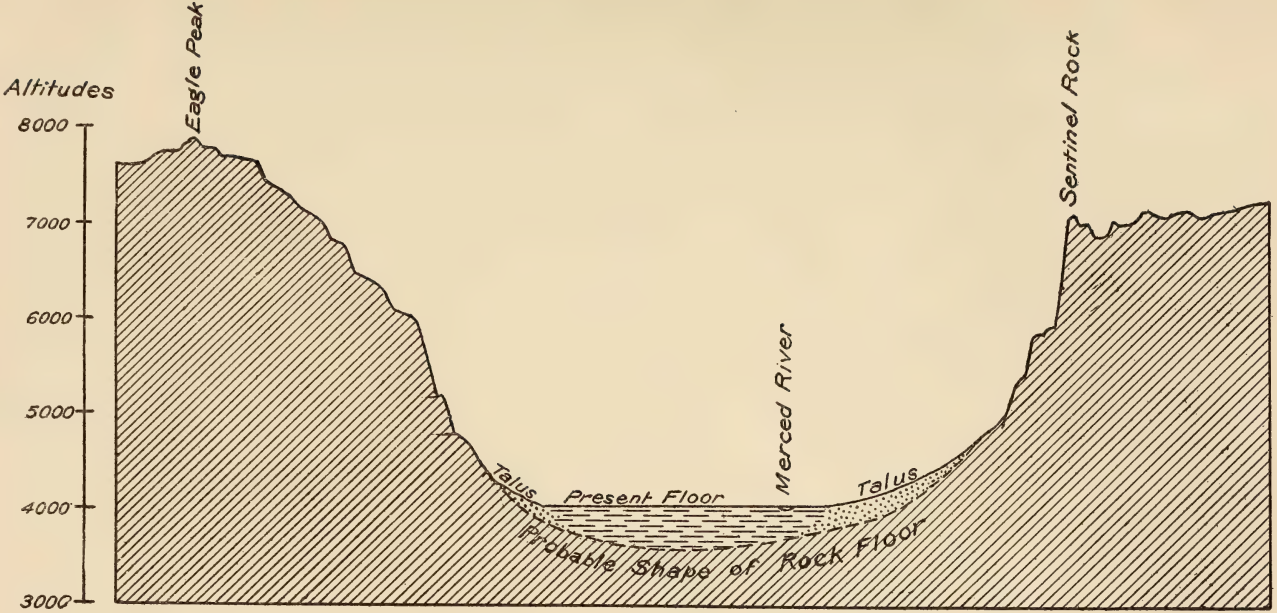

HALF DOME
Nevada Falls
Mirror Lake
Vernal Falls
NORTH DOME
LAKE YOSEMITE
Glacier Pt.
Sentinel Dome
Yosemite Falls
Eagle Pt.
EL CAPITAN
El Capitan Moraine
Bridal Veil Falls

Sketch-Map of Yosemite Valley, Showing the Extent of Ancient Lake Yosemite.

Although nothing now remains of ancient Lake Yosemite, its extent, nevertheless, is still easily ascertained. One need but follow the edge of the level meadows that now form the valley floor, in order to trace the former shore line. Evidently the lake occupied the entire extent of the valley, up to the cliffs that enclose its head; its length, therefore, must have been close to six miles.

Nor was it a mere shallow pool. Its depth, there are reasons for believing, may have exceeded 500 feet. No actual measurements, such as might be obtained by borings, for instance, are available, it is true, and the figure mentioned cannot claim to be any more than a mere estimate. Yet it is not wholly without foundation, as a glance at the accompanying diagram will show. That diagram represents one of a number of cross-sections of the valley, constructed by the writer with the accurate and abundant trigonometric data on which the detail map of the Yosemite Valley is based. Being free from vertical exaggeration, it affords a fair means for judging the probable depth of sediment now filling the valley. It is reasonable to assume that the Yosemite Valley, having been vigorously glaciated, possesses a somewhat concave rock floor, shaped like the bottom part of a U. Completing, tentatively, the missing part of the curve, therefore, one obtains an approximate measure of the depth of the extinct lake. In the cross-section published herewith, the curve has purposely been drawn quite flat, in order that the estimate of depth may not be accused of undue liberality. Yet, the depth indicated by the diagram is not far from 500 feet. Other cross-sections give closely accordant figures, those toward the head of the valley indicating still greater depths.

Is it to be inferred also, the question may here be asked, that the El Capitan moraine has a height of 500 feet? No, that ridge, in all probability, does not stand a hundred feet high above its base. A direct measurement of its height, unfortunately, cannot be had. The river has not yet cut the notch down to bed rock. At least so Galen Clark informed the writer. While still in charge of the valley, he had undertaken to enlarge the notch in order to lessen the danger from floods during the spring freshets. He had found only loose boulders, which he had removed with the aid of dynamite.


Altitudes
8000
7000
6000
5000
4000
3000
Eagle Peak
Sentinel Rock
Merced River
Talus
Present Floor
Talus
Probable Shape of Rock Floor

Section of Yosemite Valley from Eagle Peak to Sentinel Rock, showing probable depth of river sediment now filling the basin of ancient Lake Yosemite, to about five hundred feet. The section is based on the trigonometric data of the United States Geological Survey and is free from vertical exaggeration.

On its up-stream side the ridge is buried under lake deposits, and only the upper fifteen feet emerge. On its down-stream side it slopes down twenty-five to thirty feet, but here, too, its foot is covered by river gravels of unknown depth. Examination of other moraines in the Yosemite region, more especially those of the later ice invasions, to which the El Capitan moraine itself belongs, seems to indicate, however, that a height of one hundred feet is the maximum assignable. The majority of these ridges scarcely exceed fifty or sixty feet in height. Five-hundred-foot moraines are foreign to the region.

If the El Capitan moraine is not over one hundred feet high, how, then, shall we account for the great depth of Lake Yosemite, as indicated by the diagram? The answer is, by assuming the existence of a deep basin eroded in the rock floor of the valley by the ice. There is nothing violent in that assumption. Glaciers normally excavate extensive rock basins in the bottoms of their valleys. The well-attested instances of such action are literally numberless. Lake basins are a familiar feature of all glaciated mountain regions, and in some cases—such as that of Lake Chelan—they occur on a truly stupendous scale, dwarfing Lake Yosemite into insignificance.*

Nor need one go outside the Yosemite region for examples. There is evidence of a lake basin on every tread of the stair-wise descending branch cañons. The stair-like character of the floors of these cañons, it may be pointed out in passing, is a distinctly glacial trait, and the presence of lake basins hollowed out in the treads is only one of the concomitant features.

Thus the entire Little Yosemite Valley was once occupied by a lake. Filled with river gravels, like the main valley itself, it now presents the appearance of a gradeless flat of some three miles, above which only the crests of several curving terminal moraines emerge.

On the tread immediately above the Vernal Falls, again, is Emerald Pool, diminutive, yet as typical a glacial rock basin as one can find anywhere. Tenaya Cañon, it appears, once possessed four glacial lakes, situated at successively higher levels. All but the lowest, however, are now filled with sediment; Mirror Lake alone survives as a remnant of the largest lake.

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* The writer's attention has been called to what appears to be rock-in-place visible in the bed of the Merced in the upper part of the valley. The supposed great depth of sedimentary filling in the valley would thereby seem to be discredited. A visit to the spot in the fall of 1910, however, enabled the writer to satisfy himself that the outcrop of rock reported is in reality only an indurated bed of coarse river sand, irregularly gullied out by the current, and closely resembling solid granite. It is friable in the hand and is underlain by unconsolidated layers of sand and silt.

After one has become familiar with all these lake basins in the branch cañons of the Yosemite Valley, and one has, moreover, gained an insight into their mode of origin, one can scarcely avoid reaching the conclusion that in the main valley, too, there is a deeply eroded rock basin, now covered by the silts of Lake Yosemite. The combined mass of the Tenaya and Merced glaciers here must have eroded with particular vigor. The very fact that each of these ice streams, by itself, was able to excavate rock basins of considerable extent and depth, leaves little doubt that united they achieved still larger erosional results. Besides, it has been noted that it is immediately below the confluence of glaciers that the ice usually attains the greatest power to excavate.

The El Capitan moraine, then, is not to be given sole credit for the creation of Lake Yosemite. That lake in all probability lay in a rock basin eroded by the ice, and the only function of the moraine dam was to raise the level of the waters, thus increasing their depth and extent.

In the meanwhile it should not be forgotten that the existence of the rock basin is purely inferential and is to be considered unproven until a series of borings along the whole length of the valley shall afford the necessary facts. It is to be hoped that some day such borings may be undertaken; they would not merely serve to solve a problem of great local interest, but would contribute much-desired data regarding the still challenged eroding efficiency of glaciers.

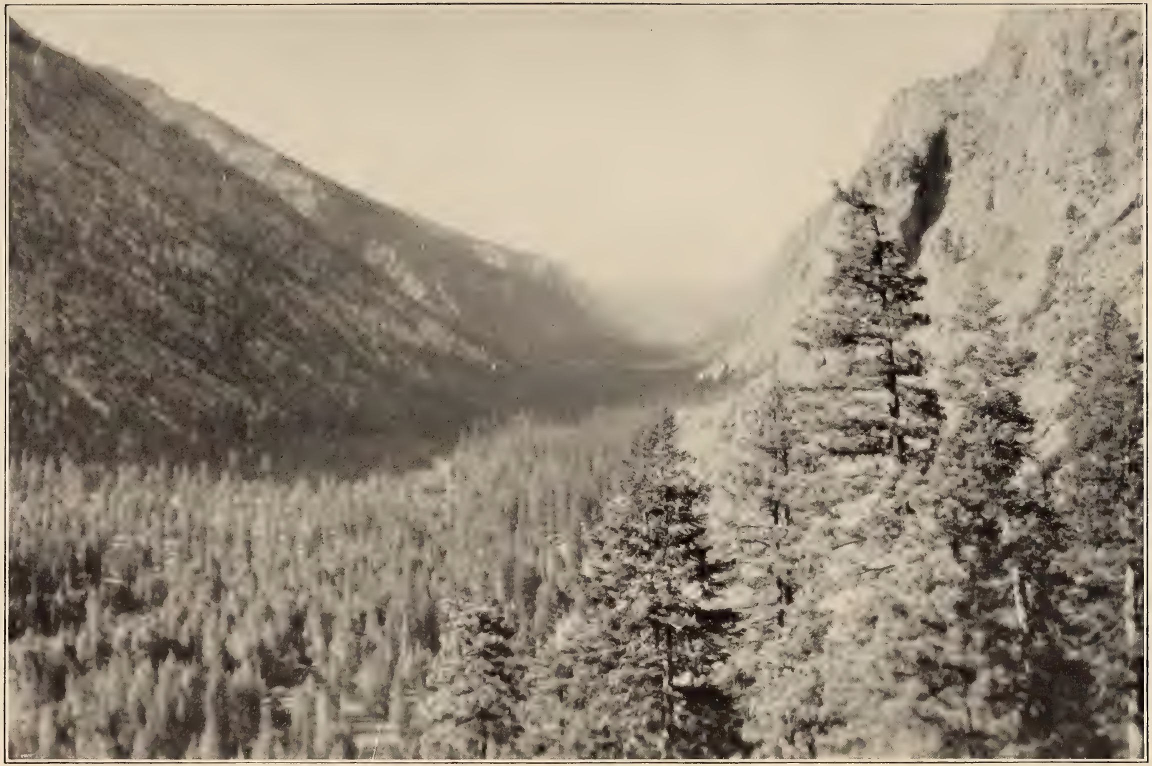
That the Yosemite Valley has actually been occupied by glacial ice no one now will venture to dispute; were all other ice signs in the valley rejected as untrustworthy, the El Capitan moraine alone would afford evidence sufficient and irrefutable. As to the extent to which the ancient glaciers have remodeled and excavated the valley, nothing, perhaps would go further towards settling this vexed question than a series of direct measurements establishing beyond doubt the depth of former Lake Yosemite.

THE KERN RIVER OUTING OF 1912.

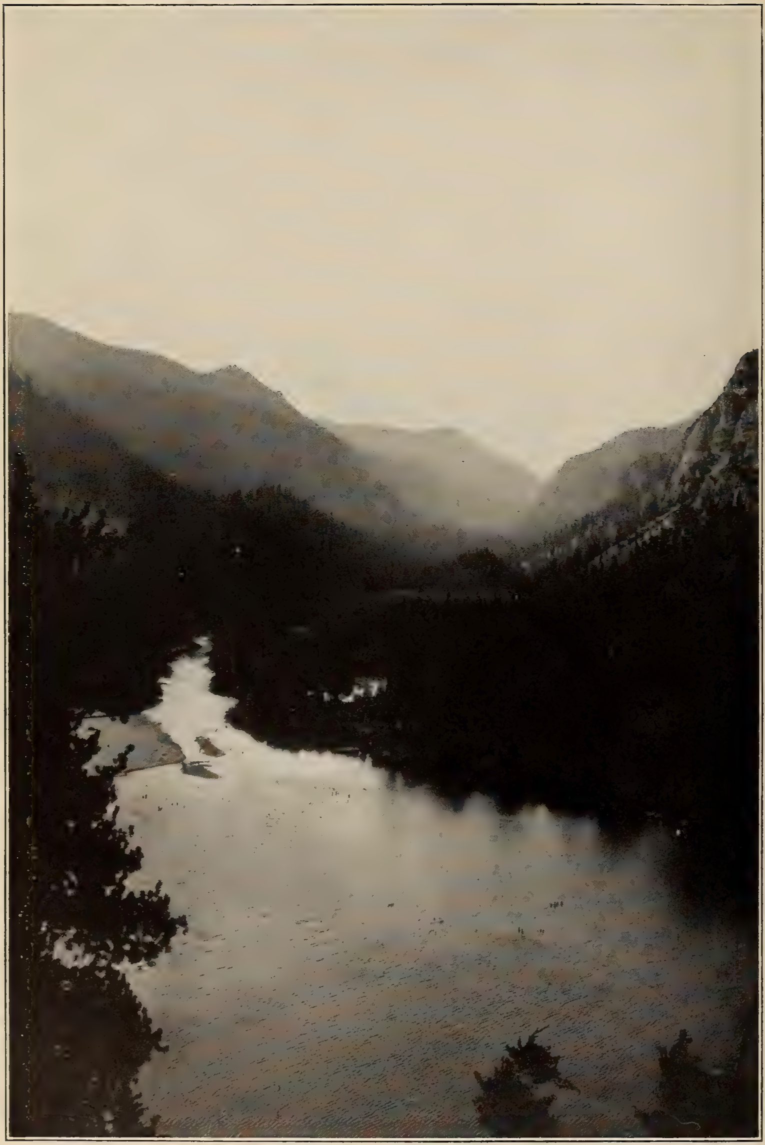
By Frederic Bruce Johnstone and Elsie Leale Johnstone.

On one of those delightful days in April which come even in Chicago, we fell to talking of our plans for the summer. California, the Maine coast, and the Wisconsin woods, each in turn was debated, but without decision. Then in came a loyal son of Berkeley, bringing maps of the Sierra Nevada and tales of the trampers who thither made their annual pilgrimage. We joined the Sierra Club by telegraph, and one week later, on receipt of the preliminary announcement of the 1912 Outing, began our preparations by memorizing that document.

On Sunday, the 23rd day of June, we arrived in San Francisco, and three days later boarded the Sierra Club special at the Oakland Mole, and the Outing had begun. Springville was reached at four o'clock the next morning. The bolder spirits started bravely on foot, but by far the greater number preferred to take advantage of the wagon road, the last we were to see for many a day, and drive the first eight or nine miles to the forks of the Tule River. It was a pretty drive into the foothill cañon, with its wooded sides, where the stately yuccas stood like white-garbed sentries, but it was with eagerness that, about eight o'clock, we climbed down from the stages and struck off upon the trail. Our way wound up and up into the foothills, hot and dusty enough, but not at all the unbearable ordeal that had been promised, especially when relieved by little rests at the crossings of the stream and by that cheering roadside hospitality which we learned to associate with the members of the Sierra Club, but which seemed on that first day, to a tenderfoot, the work of ministering angels. At last, hot and dusty, footsore and weary, after our nine-mile climb, we reached Nelsons, where we were to camp for the night. Still it is not the dust nor the blisters that linger in the mind, but the bath at the running stream, the first line-up for camp supper, the first camp-fire, when a letter of greeting from John Muir was read which set us all in tune with the spirit of the mountains, and at the end, that first wonderful night under the stars.



THE NOBLE LENGTH OF THE KERN CAÑON.
Photograph by W. C. Alvarez.



KERN LAKE EMBOWERED IN GREEN FORESTS.

Photograph by Chas. W. Michaels.

"Everybody get up, get up, get up," was the call that sounded at four o'clock in the morning. We were soon upon the trail. Still our way was upwards, but more and more beautiful as we went. Before long we came among the Sequoias, their huge red-brown trunks gleaming from the hillsides through the deep strong green of the pines. Noon found us where the stream took its rise in a little meadow. As we lunched on the sunny slope the pack-train passed, an Ali-Babian sight that even subsequent familiarity failed to rob of its charm. Afternoon took us over the divide and down through a grove of Sequoias, even finer than the one we had passed through in the morning.

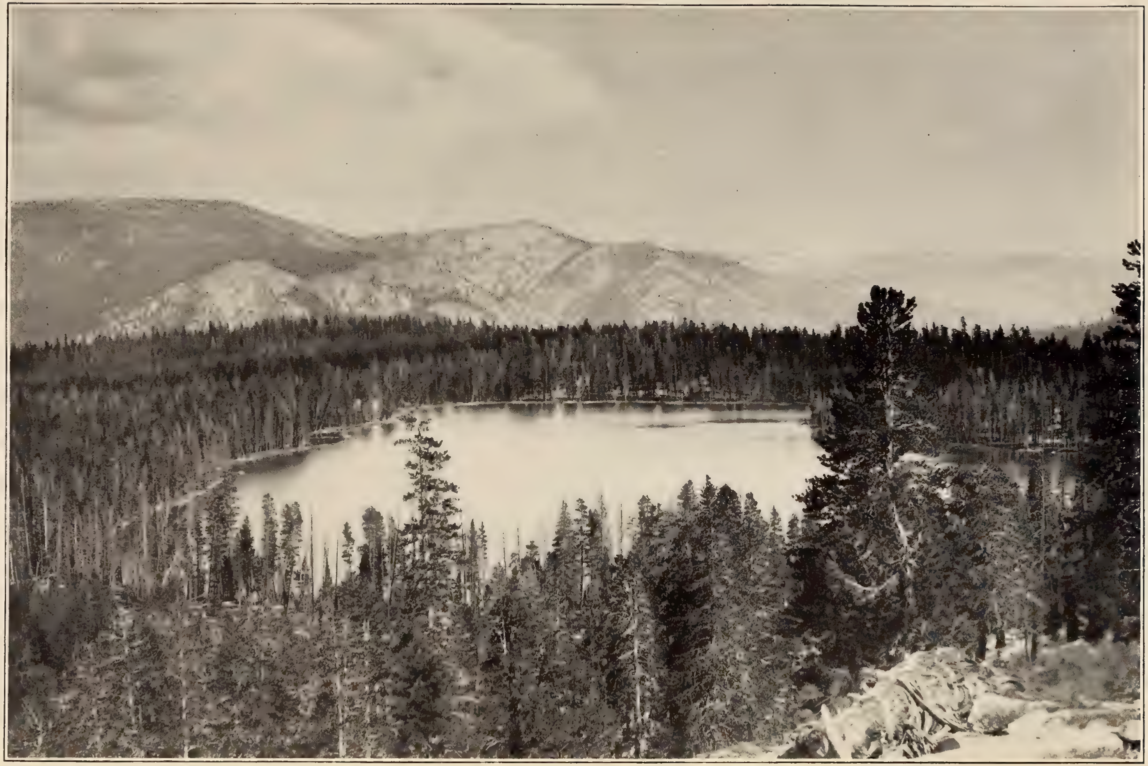
From the camp established at Lloyd Meadows we started the third day of our tramp, a long day according to any kind of reckoning, up hill and down dale, across streams and over ridges, until we came at last to a roaring, tumbling torrent, foaming green between its towering walls, and knew that the preliminary work of the trip was over. We had reached the Cañon of the Kern. Our camp that night was at Little Kern Lake, a charming sheet of water almost completely encircled by the cañon walls.

Here we rested for three days. At first it seemed as though washing was going to be the main business of life, but we soon discovered other delights. Good fishing and splendid bathing were near at hand; a climb to the butte just beyond the lake was rewarded by one of the most lovely prospects of the whole trip, that of Kern Lake embowered in green forests, guarded by the majesty of Tower Rock, with the noble length of the Kern Cañon lying beyond it. Those mildly venturous sought out the soda springs or hunted cataracts in the side cañons—a most diverting form of the chase—while some of the restless spirits climbed Coyote Peak to get the first glimpse of the high places whither we were bound. At Little Kern Lake, too, we began to make of the camp-fire a delightful habit, and thereafter not a night passed when we did not come together around the blazing logs. Songs and chorus singing, interesting talks, splendid violin music, served to show how richly endowed was our company, and good fellowship crowned the whole.

After three days of this busy idleness, the word was given to move on to Golden Trout Meadows. Some chose to follow up the bed of the stream, thus getting acquainted with its lovely series of falls and cataracts. Others kept to the trail, with its glimpse of the cañon, widening as we rose. Either route allowed us to enjoy the gleaming upper falls and picturesque natural bridge over the stream. Noon found Golden Trout Meadow dotted with luncheon groups. What a change from the first day out! Now lunch bags were opened with eager anticipation. Their contents were inspected with delight. Over our pleasure in its consumption, we even forgot that the food was nourishing, and when the feast was ended, or begun and ended, as most of them were, with delicious golden trout, fresh-caught from the stream, it seemed a feast for the gods.

There were other diversions during our stay there, it is true. There were volcanoes to be visited, extinct craters whose blood-red cones gave a picturesque note of color to any view of the region. And there were peaks to be climbed, one of which, an unnamed summit just back of the camp and easily accessible, afforded a wonderfully adequate prospect of the Kern Cañon, the Big Arroyo and the whole extent of the Chagoopa Plateau, the ragged peaks of the Great Western Divide forming the sky line and Moraine Lake showing like a tiny emerald among the trees. It was at Golden Trout Meadow that we were treated to a snow-storm, not a severe one, to be sure, but still pretty blustery for the third of July. There, too, we celebrated the Fourth around a royal camp-fire, and more than one of us will remember the picture of the flag illumined by the red fire—the altar-piece in a cathedral aisle of pines. But the main business of life at Golden Trout Meadows was fishing, and almost everybody fished, many turning out to help fill the great club cans, which were to transplant the finny folk to other streams that knew them not. Then, like the famous regal army of ten hundred thousand men, having marched to the top of the hill, we all marched down again, and, following the floor of the cañon north some eight or nine miles, established camp at the junction of the Kern with the Big Arroyo, where we remained for two days.

It was a short walk and a merry one up the cañon and over the west wall to the Chagoopa Plateau. First there were the views backward down the cañon as we climbed, yosemite-like



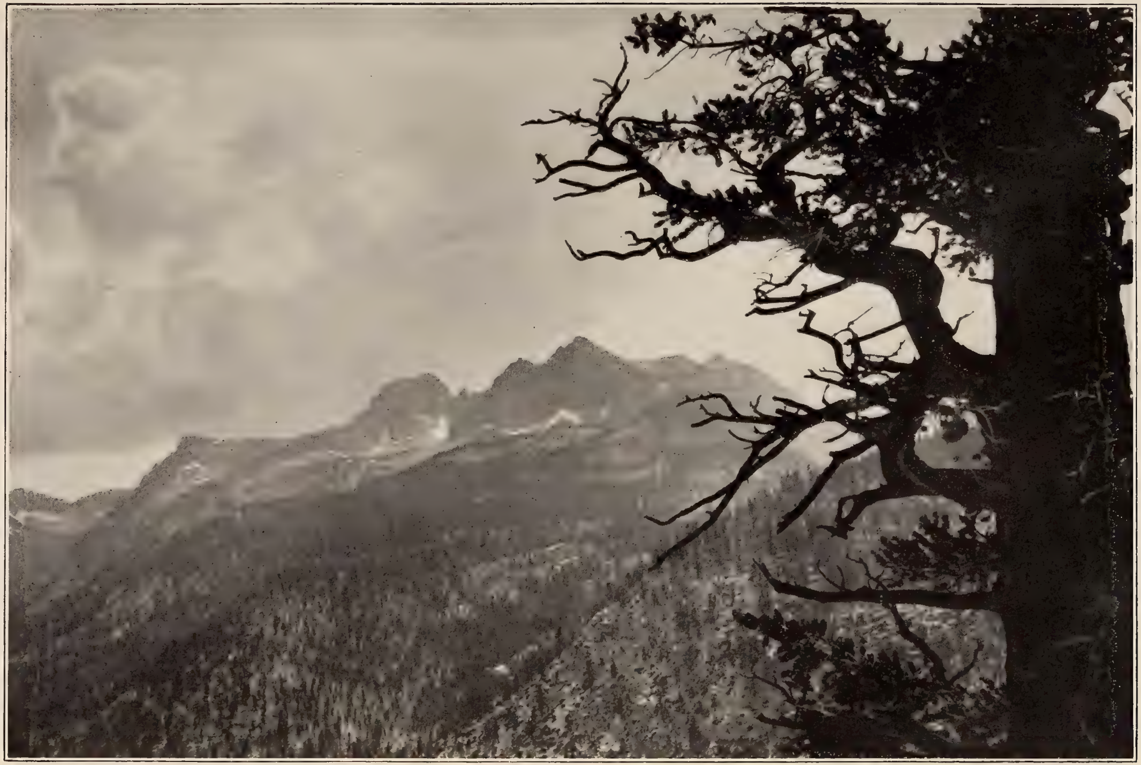
MORAINE LAKE, A SHINING GEM, CUT WITH PERFECT SYMMETRY.

Photograph by Philip Carlton.

THE EIGHT AND ONE-HALF POUND TROUT.
Photograph by Rodney L. Glisan.

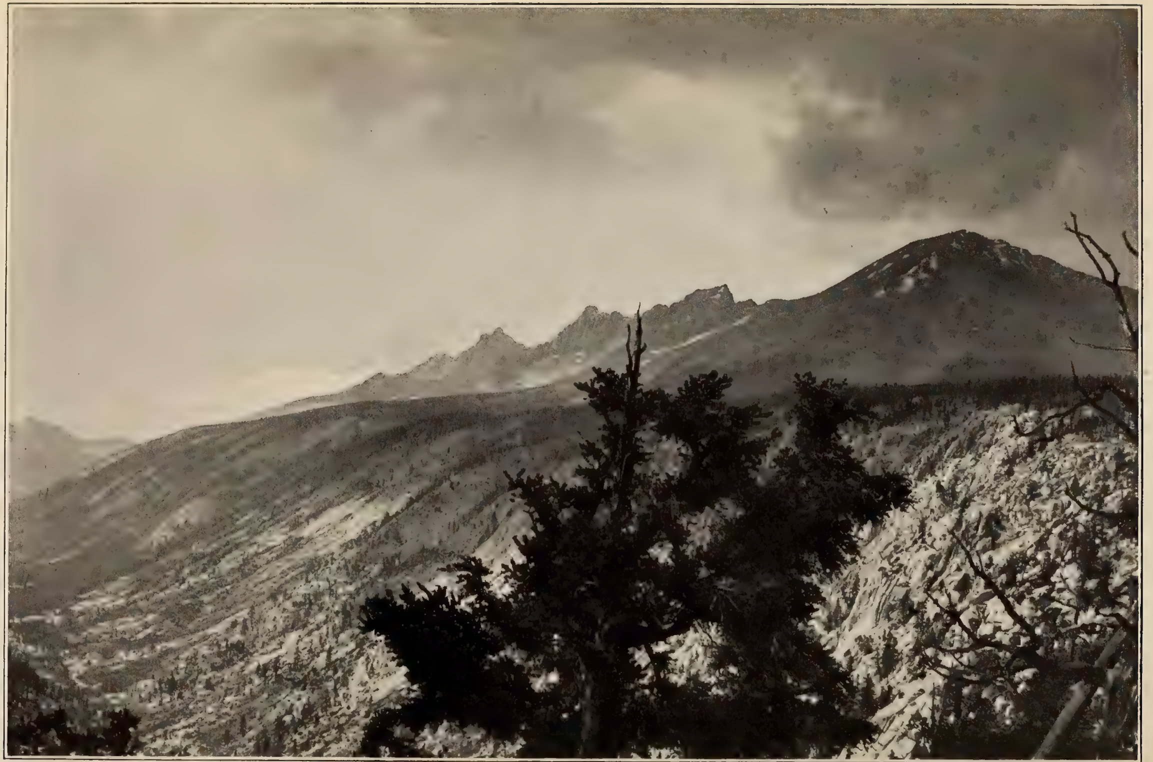
MORAINE LAKE, GREEN FRINGED LIKE A MEADOW.
Photograph by Robert A. Thompson.

SURROUNDED BY SHARP-CHISELED PEAKS.
Photograph by W. C. Alvarez.



THE WEATHER-BEATEN FACES OF PEAKS TOWERING ABOVE THE BIG ARROYO.

Photograph by Philip Carlton.



THE BIG ARROYO WITH ITS GRANITE WALLS FALLING SHEER AWAY BENEATH US.

Photograph by Philip Carlton.

pictures, seen while the morning was still young enough for the shadows to be long and blue. And then the meadow, Upper Funston on the map—"Sky Parlor," they call it—but really just the meadow, park-like in its green, pine-fringed, flower-carpeted and guarded by ragged peaks, some with patches of snow, others in their granite nakedness, all clear-cut as a cameo against the blue. A few moments more and we were at Moraine Lake, a shining gem, cut with perfect symmetry, green-fringed like the meadow and, like it, surrounded by sharply chiseled peaks reflected on its surface. The air was keen and invigorating. It felt like the top of the world, and the lofty mountains were fitting company.

The excitement of the day was the catching of some rainbow trout of prodigious size, the result of the Club's planting in 1908, and when Mr. Colby came in with a monster of eight and a half pounds and a smile to match, we all felt that come what might, the summer had not been in vain.

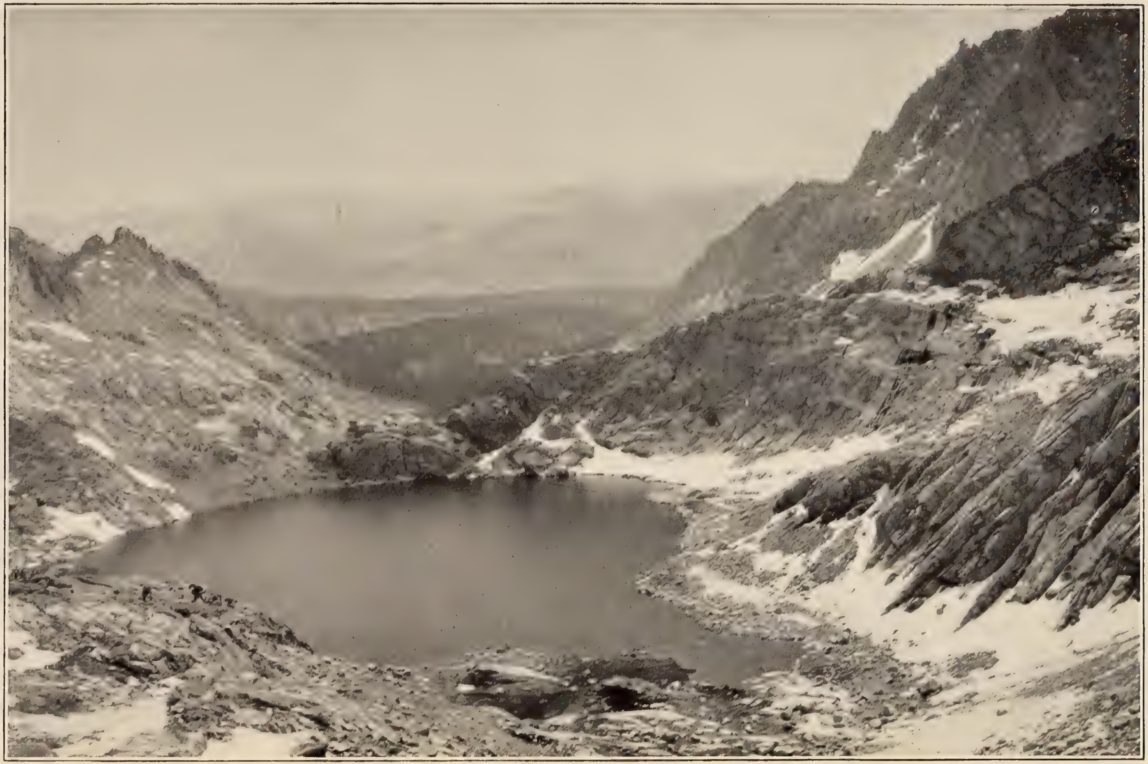
One more rare experience rounded out a perfect day. A small group of us had an early supper and climbed to the top of the little ridge back of the lake. At our very feet opened the Big Arroyo, its granite walls falling sheer away beneath us, while from either side and at its head towered the splendid peaks of the Great Western Divide and the Kaweah range, forming a sky-line of wild beauty. A tiny ribbon of green, white-flecked, threaded in and out among the trees on its floor, and only its insistent roar, heard plainly in the mountain silence, told us that it was in reality a rushing torrent. Almost opposite to us Lost Creek and Soda Creek poured in their white waters from Sawtooth and Needham. As the sun sank, its light played upon the weather-beaten faces of the peaks, lending them new beauty and filling the arroyo with a violet light. We were loath to leave, but had to go while it was still light enough to find our way back to camp.

Who can forget the vision of Moraine Lake at night, silent and black, so still, so clear, so perfect in its reflection of each shining star that the beholder felt transported to some other sphere where heaven lay at his feet. Five days were spent at this lake, a center for most interesting trips. There was the much-heralded foot-tour to Columbine Lake and Sawtooth, for which many set blithely forth and which some accomplished; but all returned with accounts of a mighty torrent which couldn't be forded and a raging bear which might have been dangerous had not some thoughtful rangers staked it securely to a tree! The Red Kaweah, close at hand and commanding, lured many to its summit, to be rewarded by a most extensive panorama of cañons and ranges, lakes and distant peaks.

A number of knapsack parties set out from Moraine Lake, all bound by slightly different paths, up to the head of the arroyo, over Triple Peak Divide into the Kern-Kaweah, and so down to the main Kern Cañon. The stay-at-homes watched them depart, accoutered for the trail and filled with eager anticipations, and remained to wonder at the happy efficiency of the Outing Committee that could make such things possible.

More and more do two things stand out in retrospect. One is the unique ability which so managed it that two hundred people could be taken out into the very wilderness and cared for, bag and baggage, in comfort and in plenty, that discipline could be maintained without restraint, and freedom and provision be accorded alike to the mountain-climber, the knapsacker, the seasoned "hiker," and the tenderfoot. The other is the wonderful *esprit-de-corps* that animated all those people and made each feel in some subtle yet potent way that in the happiness of all lay his own best wish. Not once in all the four weeks was the voice of the grumbler heard, while a dozen times a day were there proofs of kindliness and comradeship on every hand.

Then came the day when we were due to leave the plateau. With a last look at the peaks reflected in the lake and a last glimpse of the meadows, silver-spangled with the morning dew, we descended again to the cañon. Eight or nine miles of the most beautiful portion of the Kern were before us. The walls here are quite yosemite-like in their grandeur. Great cliffs of stone rose in some places three or four thousand feet above us; the sky-line was broken into domes and spires, with here and there a wild side-cañon dashing its stream in cataracts toward the main chasm. And always the Kern River itself, boiling, foaming, rushing precipitately down the cañon, singing



COLUMBINE LAKE AND LOST CAÑON FROM BASE OF SAWTOOTH.

Photograph by Philip Carlton.

A STORM GATHERED OVER THE KERN CAÑON.
Photograph by Philip Carlton.

on its way. The coloring of the walls surpasses that of the sister valley—soft pastel shades giving an almost eerie radiance to the picture. A storm gathered as we went and the passing clouds lent their play of lights and shadows to the wonder of the whole. The rain fell just enough to bring out all the warm, sweet odors. We were almost sorry when, arriving at the junction of the Kern and Kern-Kaweah Cañons, we found ourselves in camp.

And yet the place was most attractive. The length of the cañon was below us, its walls rose up above us, while over us Kern Peak, a most majestic cliff, stood guard. The Kern-Kaweah poured over a great rock-barrier in a series of lovely cataracts. The Kern slipped through another barrier in a narrow, winding gorge. And in the midst of all this grandeur, gay and unabashed, blossomed a lovely garden—meadow-rue and columbine and hundreds of tiger lilies under the trees.

From the Junction Camp everyone had an opportunity to visit one of Mother Nature's most perfect bits of handicraft—the hanging cañon of the Kern-Kaweah. Towering walls, a tumbling stream, sharp granite peaks at its head and, framed in its rocky walls, a wonderful vista—the wild peaks of the opposite range seen at the head of the East Fork Cañon. By trail or by the bed of the stream the entrance to it from the Kern is most alluring. A short distance up, the stream widens out to form Rockslide Lake, which shows the most pellucid water, clear as crystal and emerald green. Just beyond the cañon widens into a sort of granite amphitheater. Two tributary streams pour over the walls, and meeting, dash into the main cañon over a rocky ledge. The main stream, too, comes tumbling down in a lovely fall. Between them is a fine grove of pines and a perfect little meadow. And so this cañon goes, lakes and cataracts and towering walls and at its head the savage company of mountains, Triple Peak Divide and the Milestone Bow. The Kern-Kaweah lives in the memory as one of those rare glimpses of perfection that we are now and then vouchsafed.

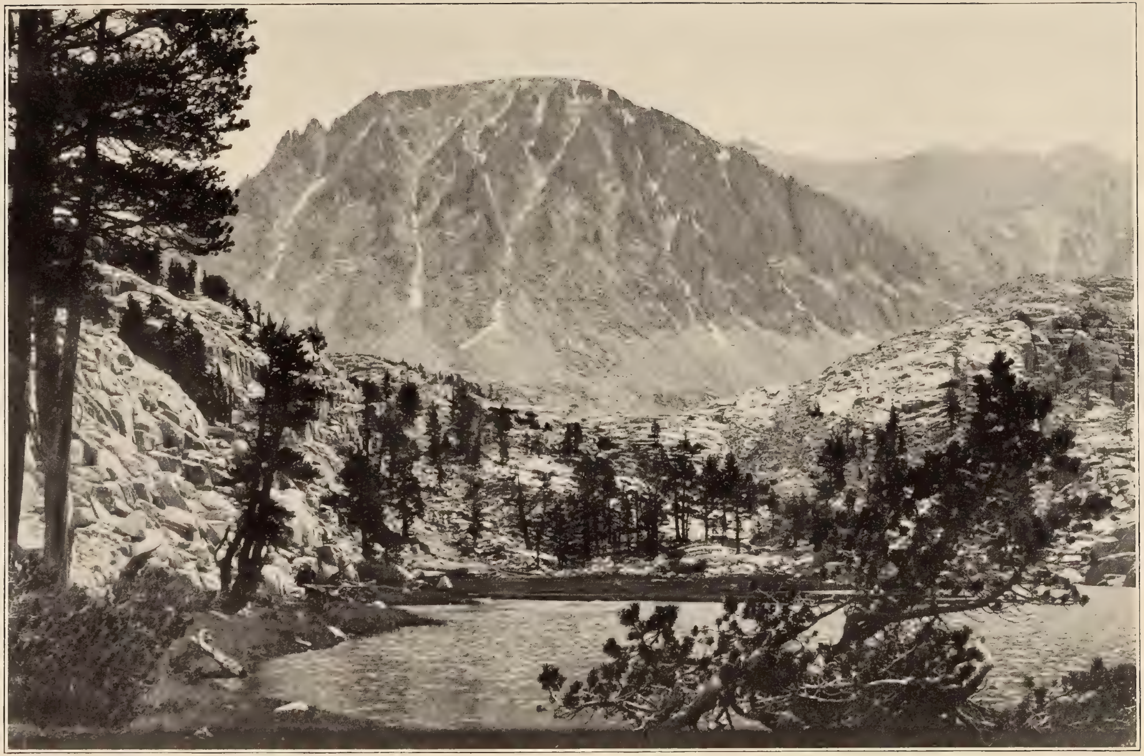
At Junction Camp our family was divided, a large party traveling farther up the Kern to the vicinity of Mounts Tyndall and Williamson and Table and Thunder Mountains. Here the ardor of the mountaineers was dampened by the only storm encountered during the entire trip. Still a number gained the top of one or another of these peaks and when the party rejoined the main camp at Crabtree Meadows it was with memories of two days of beauty and grandeur in the wild region where they had ventured.

Throughout the entire trip, the summit of Mount Whitney represented the goal of general ambition. It is but a scant hundred feet or so above a goodly company of mountains, its very supremacy is challenged by the champions of Rainier, but nevertheless, the schoolbook statement that, save for Alaska, Whitney is the highest point in the United States, carries one forward with tremendous eagerness to gain its crest. The morning broke clear and bright, but long before the stars had surrendered, many of us were hurrying toward the camp kettles and before five o'clock breakfast was over and we were on our way.

At first the road lay along the green banks of a gentle stream, then out into the meadows, and gradually up into the rocky amphitheater which marked the base of the real ascent. If one may judge to whom the experience was absolutely new, the climb was easy. The chimney, while steep and slippery from melting snow, presented no real difficulties even to the novice; and once scaled, the way was plain. A rocky, zigzag path, with here and there a snow blanket but knee deep; a long easy grade over broken boulders, a small stone structure outlined against the sky ahead, a run towards it on the now level space, and it needed no miniature obelisk to tell us we had arrived. It was a little past eight o'clock, the day was bright and fair, the air cool and bracing. The thermometer on the Government cabin stood just two degrees above freezing.

A few steps to the eastern edge of the summit and one instinctively drew back—the earth seemed to fall away beneath us—and small wonder. From our proud eminence we were staring down fifteen thousand feet upon the Death Valley region which sinks below the level of the sea.

On every side but this lay a succession of cañons and peaks —and gradually rising in a distant glorious ring, came the billowing clouds which in a few hours would shut out the view.



MOUNT WHITNEY (14,502 FT.) FROM THE TRAIL TO ITS SUMMIT.
Photograph by M. R. Parsons.

THE STEEP SNOW-SLIDE AT ARMY PASS.
Photograph by Elsie Zeile and Edna Osborn.

PART OF THE PACK-TRAIN ON THE TRAIL WE CUT AT ARMY PASS.
Photograph by A. W. Wilding.

During the day fully a hundred of our number gained the top, and by noon most of us were on the homeward trail, stopping in the meadows to lunch and rest, and to gaze back at the mountain, now no less wonderful than when in the early dawn it had loomed up before us, undiscovered.

Rock Creek was a "one-night stand" and the next morning found us on the trail for Army Pass. Will the pack-trains get across? was the question of the hour. There was snow in the pass and no party had preceded us during the season. At the summit we waited for the pack-trains, in case any assistance might be needed. In the hours that we spent there sheltered by the rocks from the cold winds that howled through, we had ample opportunity to enjoy the prospect—the great rocky walls below us, carved into palisades and columns, little emerald lakes nestled in the hollows, a blue sky overhead and patches of snow on the mountain sides. There was much ado about the trail, which was dug out of the snow with tin cups, one shovel and a botany pick, and was trampled down by willing feet. And then the pack-train came, floundered about a bit, and walked right down the trail, we after them, and the terrible pass was behind us.

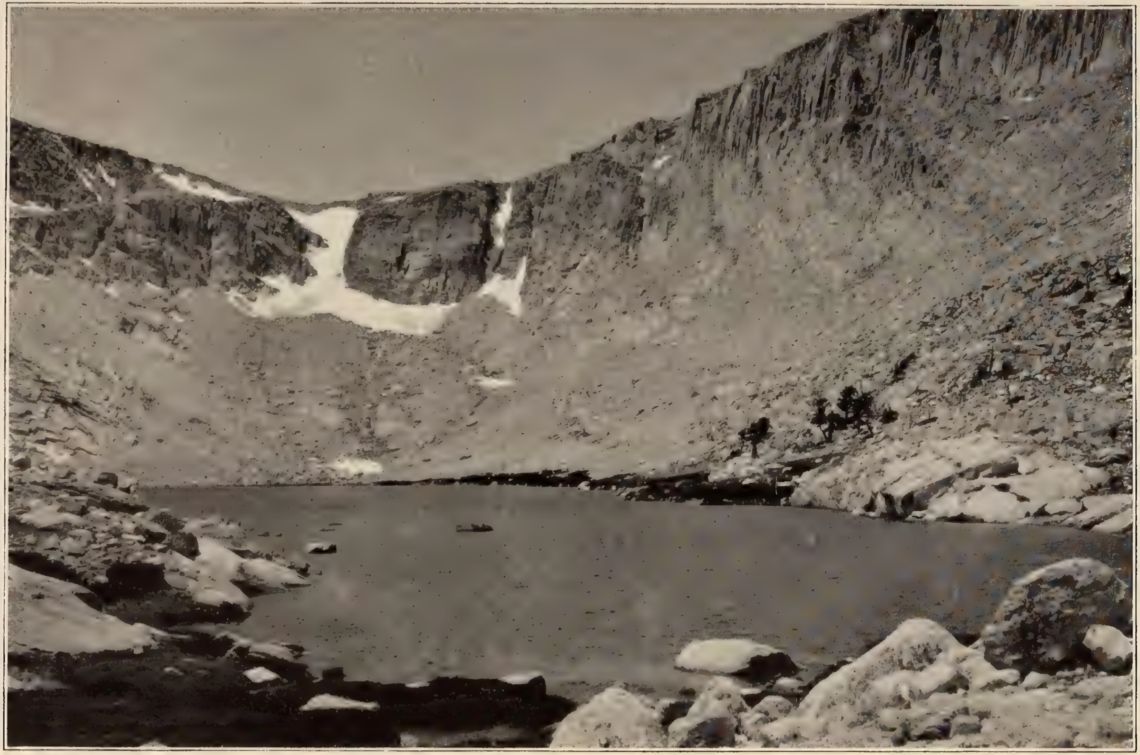
The time at Cottonwood Lakes was a playtime. All camp wore a different air, the mood in which we toy with some familiar pleasure which we are about to relinquish, the mood in which we played with our dolls and soldiers when we knew we were getting too big for them. It was in the air that we were "going out." At night we had a vaudeville performance. Two stately trees with blending branches served as a proscenium arch. The green rooms stretched away behind them, a row of lanterns did duty as footlights, while roaring camp-fires, one on either side of the audience, threw the rear of the stage into darkness, out of which the actors came, each after an introduction by an unrivalled master of the ring. Violin and song, story, masque and dance startled the silence of this lofty pleasure ground, and one and all, beholders and beheld, packers and Japanese, in various keys, but with singleness of heart, joined in the final Auld Lang Syne. In every way we sought to prolong each happy experience, each bit of fun and laughter, each mood of the past weeks in these last days at Cottonwood Lakes.

But we could not hold the obdurate hours, and morning found us started on our last "hike," down, down, down along the course of Cottonwood Creek. Down from the lakes, down from the mountains, out of the storm-twisted, weathered trees into the forests of pine—into a lovely, winding cañon, a wild cañon, but unmistakably of the foothills, wooded with live oaks and willows, cottonwoods and birch. It became warmer; glimpses of the desert showed between the hills. Still downward! By noon we had dropped fully six thousand feet. We lunched where it was warm and sage-brushy, but we found a cool spot beside the stream, which still romped along and sang to us of the mountains. After a long rest we reluctantly took up the last lap of the trail and our reluctance was confirmed when we came upon a wagon road with chickens scratching in the dust, sure signs of civilization. Still the cañon walls stretched skyward around us. They became more and more barren of trees, ceased most abruptly, and we were on the desert.

We expected to find camp near at hand, but on and on we trudged through the gravelly sand without reaching it. The pack-trains came up, passed us, and trailed off over little hillocks in the distance. Owens Lake, which at first had seemed so near, withdrew farther and farther as we went. At last the road dipped down into the dry bed of the stream—the pitiful remnant of the joyous thing that we had seen at its birth the day before. We beheld a miscellaneous collection of suit-cases and telescope baskets standing ill at ease upon the desert, and tailored coats and skirts and trousers airing from every limb of every tree. Our last tramp ended in a burst of laughter.

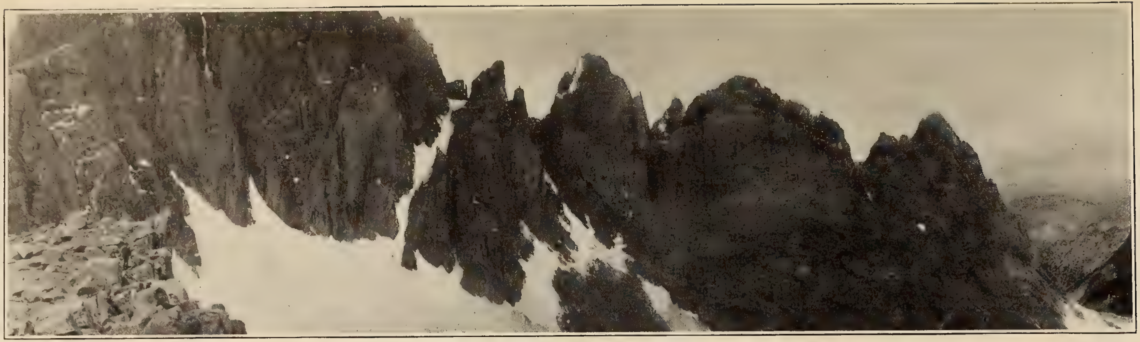
The afternoon light grew warm and glowing, and died away and the long, soft shadows of the mountains crept out over the desert as we gathered at the commissary for our dinner.

We were encamped a few hundred feet from the railroad track. Morning saw beds rolled and dunnage packed for the last time; the breakfast line filed past the commissary counter and soon the Sierra Club special came puffing down the track, and all that was left of the 1912 Outing were memories of the high and silent places, of starry nights and drowsy noons beside the running waters, of forests and flower gardens and gaunt enduring rock, new strength for old ideals, new ideals to try our strength.

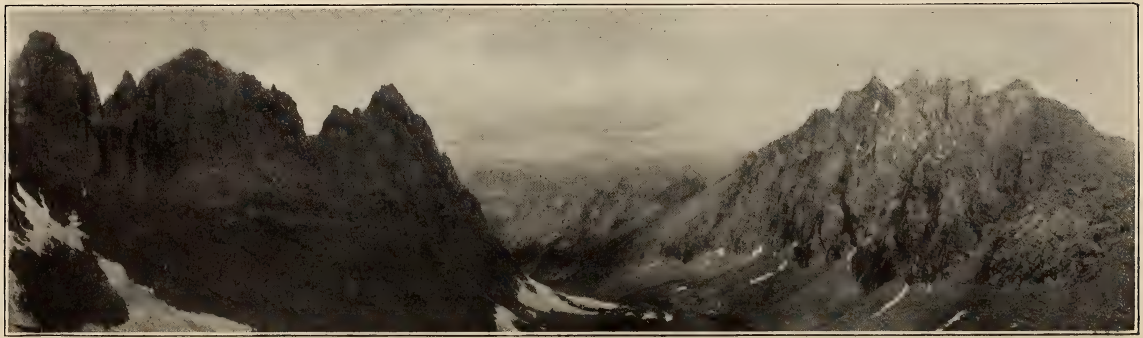


LOOKING BACK AT ARMY PASS ACROSS UPPER COTTONWOOD LAKE.

Photograph by Philip Carlton.



CRAG ERICSSON FROM HARRISON PASS.



ERICSSON AND DEERHORN.
Photographs by M. R. Parsons.

A LIGHTNING-STRUCK TREE IN KERN CAÑON.

By Willis Linn Jepson.

At the southwestern margin of Little Kern Lake the débris of a badly shattered sugar pine encumbers the little flat at that point and excited the curiosity of many members of the 1912 Outing party. A first glance recalled windfall, but the lay of the main portions of the trunk and branches contradicted this suggestion, and an examination at once showed that the tree had been struck by lightning, probably about three weeks previously, as evidenced by the condition of the green leaves and of the freshly splintered wood. A study of the wilderness of débris seemed to indicate the following story of the tragedy of a Sugar Pine.

The tree approximated one hundred and seventy-five feet in height, of which the upper half was crown and the lower half clear trunk. The trunk diameter was four and one-half feet at a point four feet above the ground. The lightning struck at or near the tip of the main axis. It sheared off the bark from the wood in a strip four to six inches wide from a point eight feet below the tip down the axis to the base of the crown, making one complete spiral. Below the crown, in the middle portion of the trunk, the lightning acted explosively and blew out the trunk in about three longitudinal or radial fragments, behaving in such a way as to suggest similarity to the action of a charge of gunpowder. One of these fragments, twenty-four feet long, was thrown to a distance of twenty-five feet from the tree. Another one fell to the ground on the southerly side of the stump, two of its portions, each twelve feet long, being driven obliquely into the ground to a depth of two or three feet. The third portion of this log-like fragment lay on the ground close by the south side of the stump. It reached the ground before the crown came down. On account of the middle portion of the trunk being blown out in this manner, the top or crown, weighing about eighteen tons, was suddenly released in mid-air and came straight down, driving the tip of its axis into the ground to a depth of about four feet, as near as could be determined.

The crown then toppled over northerly, leaving an imperfect shell of wood and bark around the circumference of the ground hole. The lower portion of the crown's axis does not lie along the ground, since it fell across and is consequently raised off the ground by a log fragment from the middle portion of the trunk, which had fallen previously, as just described. All around the tree in every direction to a total distance of one hundred and forty-four feet the ground was littered with wood and bark fragments six inches to a foot long or more, all the fragments much alike in that they were fractured sharply and not splintered. A great fragment of the trunk, twenty feet long and two feet wide, was thrown thirty feet from the base.

Benjamin Franklin apparently was the first to suggest that the explosive action of lightning upon trees was caused by the effect of the intense and sudden heat in vaporizing the water content of the trunks.

In the case of the Kern Cañon tree the lightning stroke did not start a fire. It may be possible that fire does not commonly occur in connection with highly explosive strokes, an idea which is only offered by way of suggestion. If, however, such were the case, it would follow that fire is likely to occur only where the current is fed off slowly enough to cause ignition of leaves, dry bark or punky wood. The explanations of the effects of lightning on trees are little understood,* but the explosive

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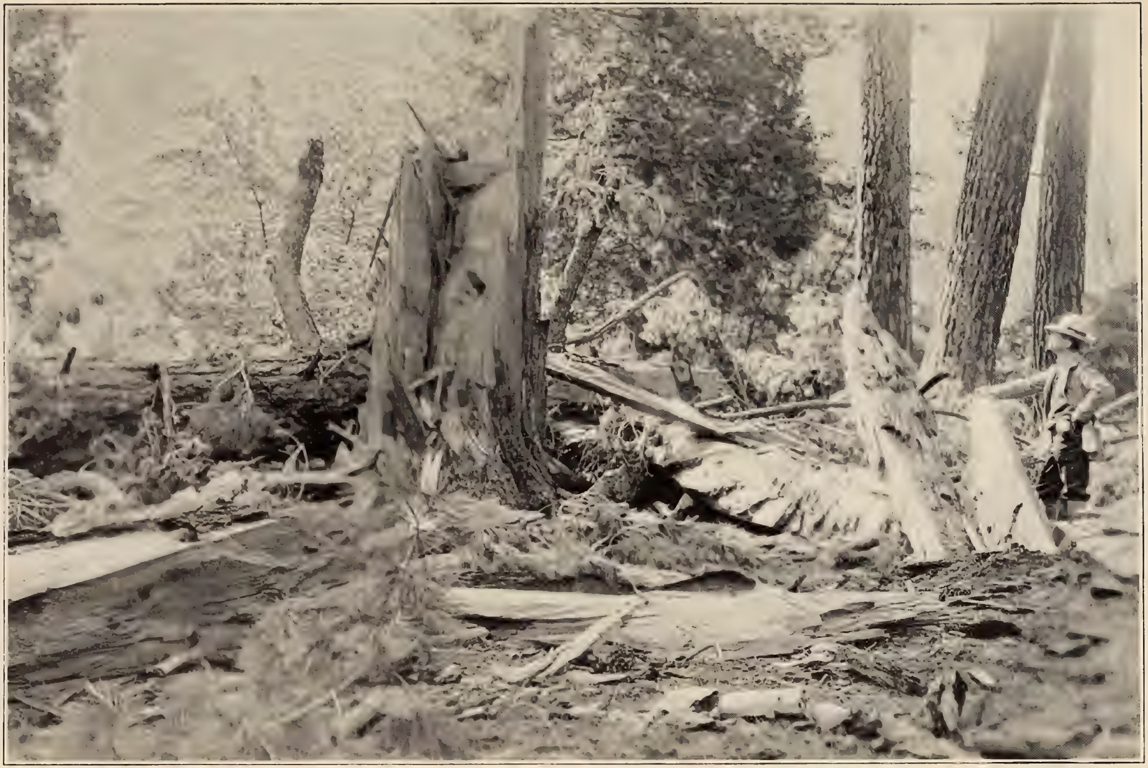
* The present state of knowledge is well summarized in "Lightning in Relation to Forest Fires" (U. S. Forest Service, Bulletin 111), a highly valuable and interesting research by F. G. Plummer. The author of this bulletin speaks of explosive action as resulting from upward stroke.

"It has been held, though not proven," says Mr. Plummer, "that the Big Trees of California are repeatedly struck by lightning, and that although not killed, their leaders are broken and their tops stunted in consequence." In the "Silva of California" I made the statement that the tops of Big Trees may be killed by lightning. This statement was made upon the basis of reports by careful observers who have lived for periods of ten to twenty years in or near the Sequoia National Park. Careful and explicit details have been made to me concerning individual Big Trees on fire in the top in cases where the fire did not originate from ground fires or forest fires. Such instances attract particular attention, partly because a Big Tree with the tip of its axis on fire 200 feet above the ground presents a unique spectacle, more especially at night, and partly because such fires often give rise to ground fires in the forest by throwing off live sparks.

The Kern Cañon tree described above stood in a lonely and remote part of the Sierra Nevada. It is therefore interesting to learn that the destruction of this particular tree was witnessed by a Porterville man in June, 1912, and that his account of what happened essentially verifies the relation given in this paper.



REMAINS OF LIGHTNING-STRUCK SUGAR PINE.

Photograph by W. C. Alvarez.

In the center is the stump and the axis of the crown just behind it. In the foreground at the right is a trunk section blown out of the middle of the tree; at the right are other log fragments, also blown out of the middle of the tree, two of them driven obliquely into the ground to a depth of about three feet.

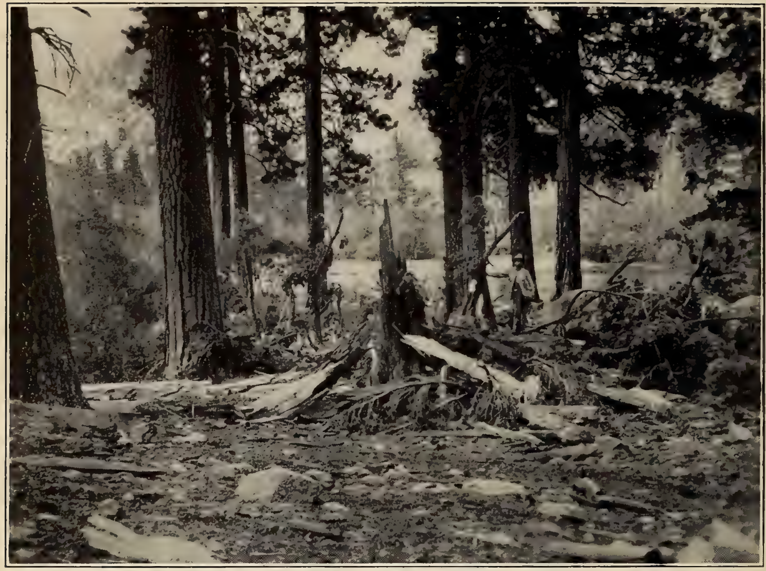


FIG. 1. GENERAL VIEW OF THE BLASTED SUGAR PINE.
Photograph by H. E. Bailey.

The open grove consists of yellow pine, sugar pine and incense cedar. Behind is Little Kern Lake and the 1912 Outing party's camp on the opposite shore.

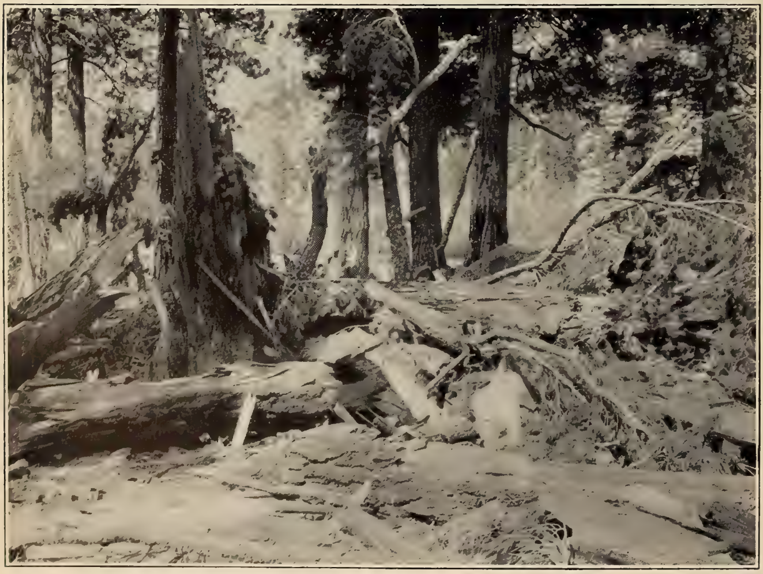


FIG. 2. NEAR VIEW OF THE WRECKAGE.
Photograph by Harry D. Webber.

LIGHTNING-STRUCK SUGAR PINE.

shock, as compared with non-explosive, may possibly find an analogy in a comparison of dynamite and powder. Dynamite, as is well known, does not produce ignition, while powder, which is relatively slow burning, usually causes ignition. It has been suggested to me that under certain conditions the tree may behave like a condenser; that is, the crown, with its numerous branches, may receive many currents, which find in the trunk a poor conductor when the trunk is dry, and in the earth a good conductor. The shock under such circumstances is fed off slowly into the earth, and the cause of a fire starting may be due, possibly, to this comparatively slow action.

If rank and wealth within the mind abide,
Then gilded dust is all your yellow gold.
Kings in their fretted palaces grow old;
Youth dwells forever at Contentment's side.
A mist-cloud hanging at the river's brim,
Pink almond flowers along the purple bough,
A hut rose-girdled under moon-swept skies;
A painted bridge half-seen in shadows dim,—
These are the splendours of the poor, and thou,
O dreamful wine, the vintage of the wise.

—*Ssü-Kung T'u,* 834-908 A. D.

NATIONAL PARKS—THE NEED OF THE FUTURE.*

By James Bryce.

I have lived long enough in the United States and have known the United States long enough, having come here for the first time forty-two years ago, to feel just as much interested in all those questions that relate to your welfare, in city and in country, as if I were one of your citizens, and I hope you will allow me to speak to you with that freedom which you would allow to one of your citizens. I do not think I need to feel those limitations when discussing a subject of this kind, so far removed from politics or any other controversial fields.

There is one thing better even than the City Beautiful, and that is the Country Beautiful. I have had a great deal of experience in England in dealing with these questions; for some years I was chairman, and afterwards a member, of a society for preserving commons and open spaces and public rights of way, and member of another society for securing to the public places of national and historic interest, and in the course of such membership I have been led often to think of what is our duty to the future, and of the benefits which the preservation of places of natural beauty may confer on the community. That is a problem which presents itself, not only in Great Britain, but all over Europe, and what Europe is now is that towards which you in America are tending. Europe is a populous overcrowded continent; you will some day be a populous and ultimately perhaps even a crowded continent, and it is well to take thought at once, before the overcrowding comes on, as to how you will deal with the difficulties which we have had to deal with in Europe, so that you may learn as much as possible from our experience, and not find too late that the beauty and solitude of nature have been snatched from you by private individuals.

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* An address delivered before the Eighth Annual Convention of the American Civic Association, Baltimore, Maryland, November 20, 1912, the Hon. Walter L. Fisher, Secretary of the Interior, presiding. The complete text of the address was published in the *Outlook,* Dec. 14, 1912.

I need not descant upon that which the love of nature is and ought to be to each and all of us. The love of nature is the very simplest and best of those pleasures the power of enjoying which has been implanted in us. It is the most easily accessible of pleasures, one which can never be perverted, and one of which (as the old darky said about the watermelon) you cannot have too much. It is a pleasure which lasts from youth to age; we cannot enjoy it in the form of strenuous exercise with the same fullness in age, because our physical powers are not the same, but we have perhaps a more perfect enjoyment in some other ways, because we have the associations and memories of those who have in bygone days visited beautiful scenes with us, and also the associations with which poetry clothes lovely nature. Therefore there is nothing which in the interest of pure enjoyment we ought more to desire and study to diffuse than the beauties of nature. Fortunately, the love of nature is increasing among us. It is one of the tests of civilization that people should enjoy this simple pleasure instead of those more violent and exciting pleasures which may become the source, in extreme forms, of evil. The love of nature, I say, is happily increasing among us, and it therefore becomes all the more important to find means for safeguarding nature. The population is increasing, too, and the number of people who desire to enjoy nature, therefore, is growing larger, both absolutely and in proportion. But, unfortunately, the opportunities for enjoying it, except as regards easier locomotion, are not increasing. The world is circumscribed. The surface of this little earth of ours is limited, and we cannot add to it. When a man finds his house is too small, he builds more rooms on to it, but we cannot add to our world; we did not make it, it was made for us, and we cannot increase its dimensions. All we can do is to turn it to the best possible account. Now, let us remember that the quantity of natural beauty in the world, the number of spots calculated to give enjoyment in the highest form, are limited, and are being constantly encroached upon. There are four forms that this encroachment takes. There is the desire of private persons to appropriate beautiful scenery to themselves, by inclosing it in private grounds around their houses and debarring the public from access to it. We in

England and Scotland have lost some of the most beautiful scenery we possess because it has been taken into private estates. A great deal of the finest scenery in Scotland is now practically unapproachable by the pedestrian or the artist or the naturalist because people have appropriated it to their private purposes and keep the public out. This is especially the case where the motive for exclusion is what is called sport. Sport is understood to mean killing God's creatures, and for the sake of killing God's creatures, such as deer and birds, very large areas in Britain and some also in other parts of Europe are shut up.

Then the enjoyment of natural beauty is largely encroached upon by the operations of the lumbermen. That is something we do not have to fear in Britain, because timber is not there in sufficient quantity to be an article of economic value to us, but it is a very serious question here. You have prodigious and magnificent forests; there are no others comparable for extent and splendor with those you possess. These forests, especially those on the Cascade Range and the Sierra Nevada, are being allowed to be cut down ruthlessly by the lumbermen. I do not blame them; timber is wanted and they want to drive their trade, but the process goes on too fast and much of the charm of nature is lost, while the interests of the future are forgotten. The same thing is happening in the Appalachian ranges in New England and the Alleghanies southward from Pennsylvania, a superbly beautiful country, where the forests, made to be the delight of those who wish to ramble among them and enjoy the primitive charm of hills and woodland glades, have been despoiled. Sometimes the trees have been cut down and the land left bare. Sometimes an inextricable tangle of small boughs and twigs remains, so that when a dry year comes a fire rages among them and the land is so scorched that for many long years no great trees will rise to replace those that were destroyed.

And, lastly, there is the question of water power, which has in recent years, since the scientific discoveries enabled it to be applied in the form of electricity, become an asset of great commercial value. You, fortunately, have a great supply of splendid water power. I am far from saying that a great deal of it, perhaps most of it, may not be very properly used for industrial purposes, but I do say that it has been used in some places to the detriment, and even to the ruin, of scenery. It has been used in Niagara, for instance, to such an extent as to change completely the character of what was once the most beautiful waterfall landscape in the whole world. Those of you who did not see it, as I did, forty-two years ago, and are not in a position to contrast it now with what it was then, cannot know what a wretched shadow of its former self it has become—not so much by the diminution of the flow of the river as by the hideous erections which line the shores. It is not too late to repair what has been done, and I hope the day will come when the pristine flow of its waters will be restored, and when the devastating agencies will have been removed. That we will leave for a future which has begun to appreciate scenery more highly than men did thirty years ago, when the ruin of which I speak was beginning to be wrought.

Taking all these causes together, you can see how many encroachments there are upon the unique beauty of your country; and I beg you to consider that, although your country is vast and has scope of natural beauty far greater than we can boast in little countries like England or Scotland, even your scenery is not inexhaustible, and with your great population and the growing desire to enjoy the beauties of nature, you have not got any more than you need. Fortunately, you have made a good beginning in the work of conservation. You have led the world in the creation of national parks. I have seen three or four of these. I have been in the Yosemite twice, in the Yellowstone twice, and in the splendid forest region which you have around that mountain which the people of Seattle now insist on calling Mount Rainier—no doubt the name given by Vancouver—but which used, when I first explored its forests, to be called by the more sonorous Indian name Tacoma; and also in that superb reserve on the north side of the great cañon of the Colorado River, as well as in others of minor extent in other parts of the country. The creation of such national parks is good, and it has had the admirable effect of setting other countries to emulate your example. Australia and New Zealand have followed that example. New Zealand, in the district of its hot springs and geysers, has made a public scenic area something similar to your Yellowstone, though not on so extensive a scale; the people of New South Wales have set off three beautiful national parks within thirty or forty miles of the capital city of Sydney, taking regions of exquisite beauty and keeping them for a source of delight to the growing population of that city. Therefore your example is bearing great fruit. I only wish it had come sooner to us in England and Scotland before we had lost so much control of our own natural beauties. . . .

And let me try to give some logical quality to my statements by submitting some few propositions in order.

The world seems likely to last a long, long time, and we ought to make provisions for the future.

The population of the world goes on constantly increasing, and nowhere increasing so fast as in North America.

A taste for natural beauty is increasing, and, as we hope, will go on increasing.

The places of scenic beauty do not increase, but, on the contrary, are in danger of being reduced in number and diminished in quantity, and the danger is always increasing with the accumulation of wealth, owing to the desire of private persons to appropriate these places. There is no better service we can render to the masses of the people than to set about and preserve for them wide spaces of fine scenery for their delight.

From these propositions I draw the conclusion that it is necessary to save what we have got, and to extend the policy which you have wisely adopted, by acquiring and preserving still further areas for the perpetual enjoyment of the people.

Let us think of the future. We are trustees of the future. We are not here for ourselves alone. All these gifts were not given to us to be used by one generation, or with the thought of one generation only before our minds. We are the heirs of those who have gone before, and charged with the duty we owe to those who come after, and there is no duty which seems clearer or higher than that of handing on to them undiminished facilities for the enjoyment of some of the best gifts that the Creator has seen fit to bestow upon his children.

THE DISCOVERY OF THE NEST AND EGGS OF THE CALIFORNIA PINE GROSBEAK.*

By Milton S. Ray.

With the taking of the eggs of the gray-crowned rosy finch at Pyramid Peak in June of 1910, there remained only three or four birds, known to breed in California, whose nests and eggs were yet undiscovered. One of these remaining few was the California pine grosbeak (*Pinicola californica*). . . .

At the beginning of 1912, notwithstanding past reverses, plans were laid for a return journey to the Pyramid Peak region to make another search for its eggs. By far the most important point to be settled was the selection of the proper time to visit the region. As no actual nest of the bird had ever been found, this was purely a matter of individual calculation. After a careful comparison of nesting dates of certain species for a number of seasons at Forni's (7,500 feet), Phillips' Station (6,900 feet), and Lake Valley (6,220 feet), it seemed apparent to me that June 1st of a *normal* year would be the proper date to visit the region. . . .

The writer reached Bijou, Lake Tahoe, our 1912 base, on May 19th, in time, should the season be early, to still reach the Pyramid Peak region at a proper date. By the 25th of May I felt sure of the late seasonal conditions and immediately wrote Heinemann and Littlejohn to change the date of their arrival from May 28th to June 8th. . . .

At 8,500 feet altitude, where a roaring torrent billowed over rocks and boulders and through high drifts of snow, we stopped for luncheon to compare notes. A little after one o'clock and the three of us, about fifty yards apart, were rounding a very rocky hillside at the foot of which a shallow, placid lake glittered in the sunlight. Hearing the distant song of a pine grosbeak I drew nearer and soon saw the bird at the top of a fir

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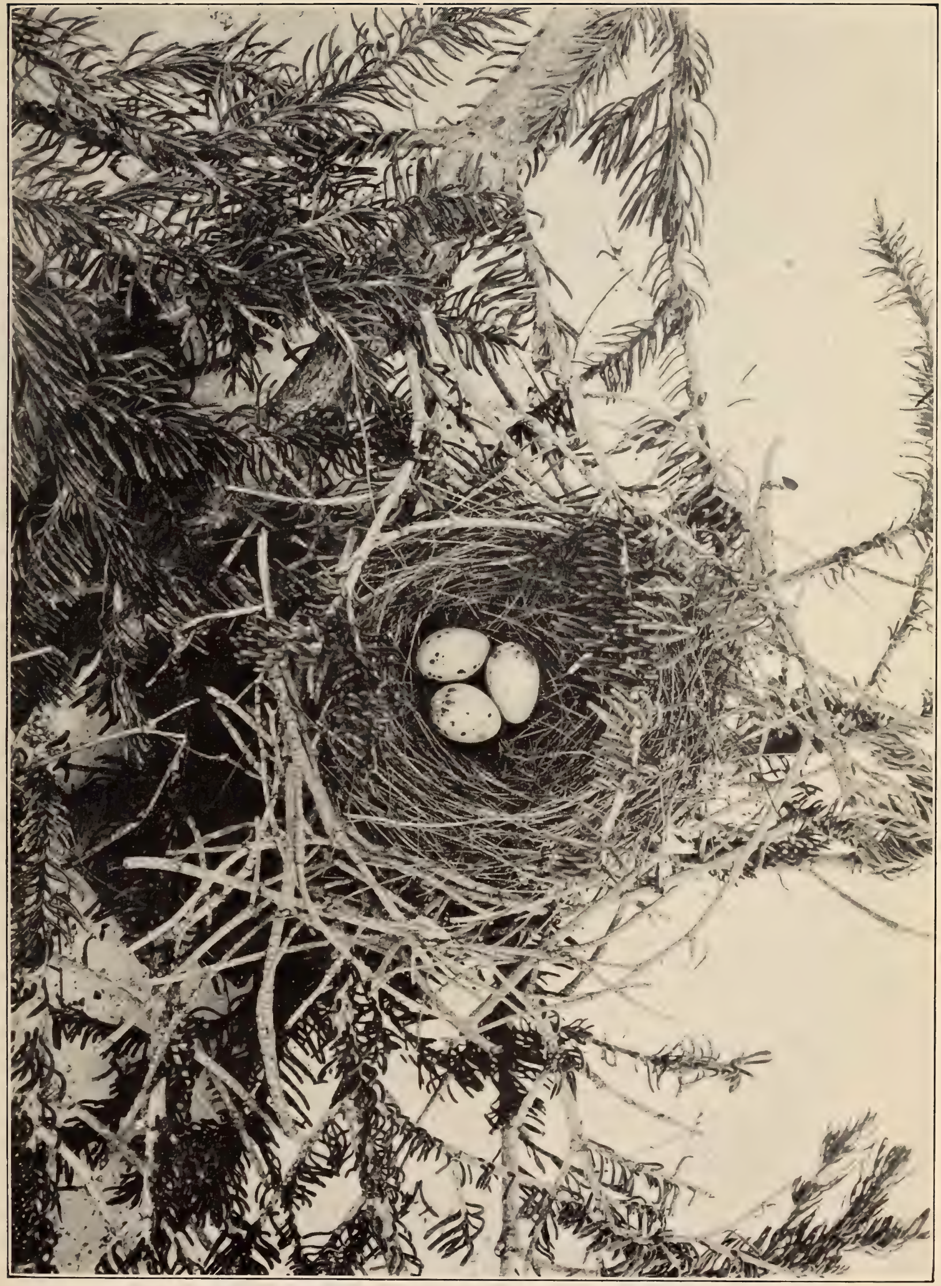
*Condensed extract of an article to be found in its entirety in the *Condor*, September, 1912.

about 200 feet high. Seldom if ever have I heard a more beautiful song than that which floated out from the top of the tall, massive fir and the effect of which the wild surroundings did much to accentuate. The day was calm and still; that almost deathly silence peculiar to high altitudes remained unbroken save for the distant roar of angry snow-streams. . . .

The song of the California pine grosbeak does not, I think, bear so much resemblance to that of *Carpodacus cassini* (which Price has compared it with) as it does to that of the black-headed grosbeak. However, as it is so much more varied, melodious and rich than that of the black-headed grosbeak, the comparison merely serves to give a general idea of its style. The song consists of a series of trills, warblings and mellow, flute-like notes that must be heard to be appreciated. The bird as a songster ranks easily with the best of Sierran vocalists like the ruby-crowned kinglet, water ouzel and Sierra hermit thrush. Unlike the western robin which, perched on some tree top, will sing through almost the entire day, the pine grosbeak is not a persistent singer and only on rare occasions have I been given the opportunity of hearing its song. . . .

The following day (June 18th) Littlejohn and I returned a second time to the locality where on June 13th we had seen the first birds on the plateau. Here, in passing along the edge of deep snow-drifts which lay everywhere through the woods, Littlejohn came upon a female *Pinicola* feeding on the snow, while a brilliant red-plumaged male was flitting among the boughs above. In endeavoring to secure the latter the female was seen to fly to a nearby tree, where she began hopping from branch to branch until a height of about twenty-five feet had been attained, whereupon she flew to, and disappeared in, the thick foliage of a hemlock bough. Advancing nearer, Littlejohn could just discern the tail of the bird projecting over what might be a nest and which on my climbing the tree proved so to be. Being situated eight feet out near the end of the limb, and in a thick patch of foliage, it could not be seen from above except by spreading the branches apart. On doing this and after the sitting bird had been urged off with a long stick the nest was seen to contain three eggs. Being unable, without equipment, to do anything further, we started back to camp.



NEST AND EGGS OF THE CALIFORNIA PINE GROSBEAK.
Photograph by Heinemann.

CALIFORNIA PINE GROSBEAK.

ANOTHER VIEW.
Photographs by Heinemann.

On the following morning we returned with carpenter tools and sufficient boards to build a rough platform up in the hemlock, which would serve in securing the eggs as well as photographs of the birds. After the writer had climbed the tree, and the tools and lumber were hauled up, a strong though rough platform was built; and to show how remarkably close pine grosbeaks sit I may add that the bird remained on the nest during the entire time, nor did she flush even when the edge of the staging was placed and nailed but a few feet from her.

The pictures shown were taken when the bird lit in a fir close by, the best being secured when the Grosbeak was on the extremity of a long branch in a rather open situation. The male only put in his appearance at intervals, and while occasionally approaching quite close never came within arm's length as did the female. Sometimes the latter would hover directly over the nest melodiously twittering. Neither bird made any attempt to resent our intrusion as birds of a more combative temperament, like the Brewer blackbird or olive-sided flycatcher, would have been apt to do; in fact, they were of a remarkably gentle and affectionate disposition, and a number of times the pair were noticed billing, which shows this habit is not necessarily confined to the time of courtship.

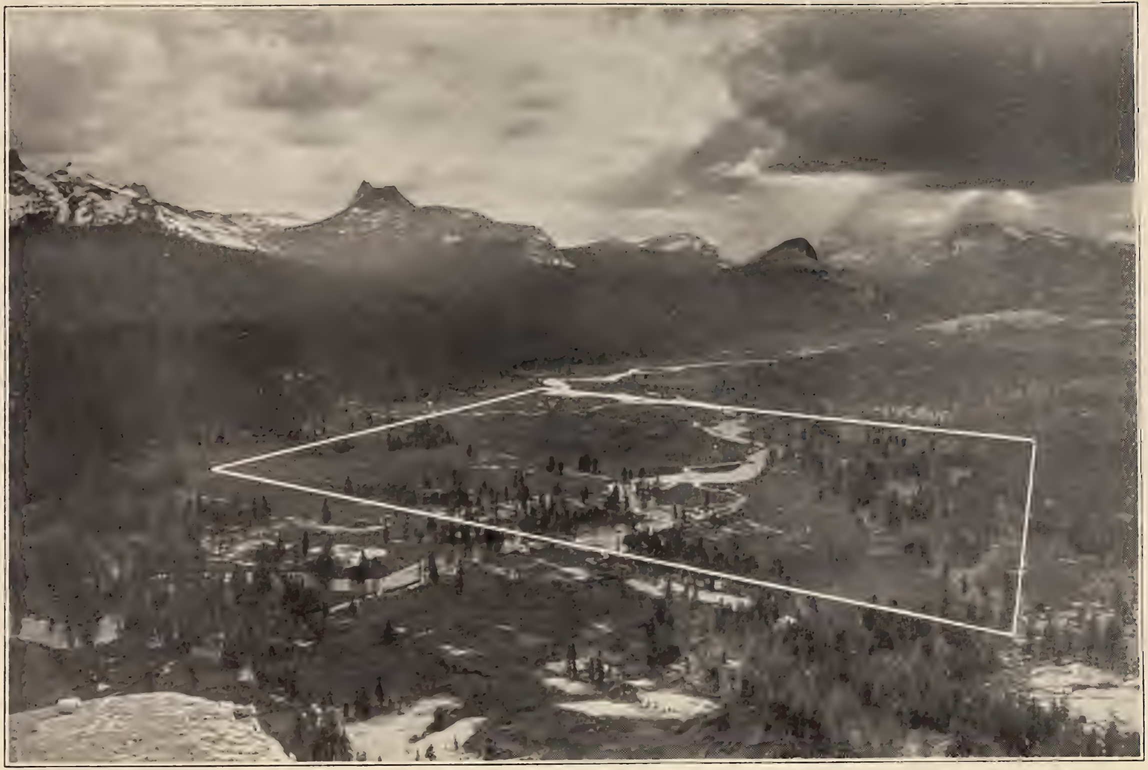
The call-note of the pine grosbeak, and we surely had an unequaled opportunity for hearing it, is a two-syllabled call bearing some slight resemblance to the words "all-right." Although Chester Barlow has stated that it is a "harsh call-note like that of the Louisiana tanager," we cannot agree with him. In the first place, "churtig," the call of the tanager, is not itself particularly unmusical, and, in the second place, the call note of the pine grosbeak is much more melodious, being peculiarly clear and liquid.

The ground color of the eggs approaches closely to Nile blue, but is slightly deeper and more rich in shade. The surface markings are spots and blotches, chiefly around the larger end, and in the form of a rough wreath of black and of a rich deep brown called vandyke. There are underlying scattered spots of wood brown and splashy shell markings of olive gray. The eggs are ovate in shape and measure 1.02 x .69, 1.02 x .67, and .98 x .71.

THE SODA SPRINGS PROPERTY IN THE TUOLUMNE MEADOWS.

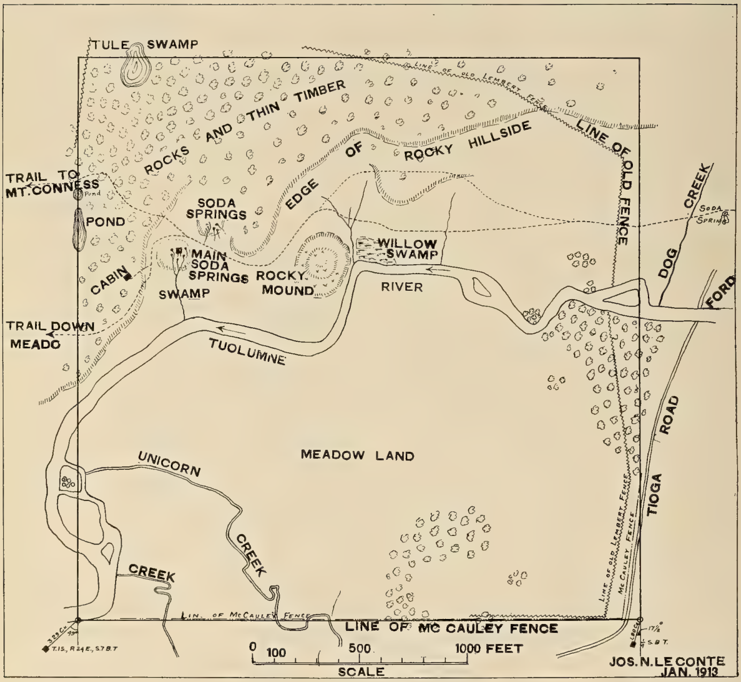
By J. N. Le Conte.

On the twenty-sixth day of June of last year, the title to the Lembert (usually called Lambert) homestead of one hundred and sixty acres, including the famous Tuolumne Soda Springs, in the eastern portion of the Yosemite National Park, passed from its previous owners, the McCauleys, to the Sierra Club. Lying as it does directly across the finest portion of the Tuolumne Meadows, and situated in the midst of the most beautiful of the high Sierra scenery, this locality has for the past forty years attracted hundreds of tourists, campers, and California mountain lovers. The Tioga Road skirts the southern boundary of the property, the Sunrise Trail to Yosemite Valley, and the Rafferty Trail to Lake Merced branch off near its southern boundary. The continuation of the Tioga Road to the east, the Bloody Cañon Trail, and the new State Road through Leevining Cañon give direct access to the Mono Lake region. Northward and westward branch the trails which cover the whole upper basin of the Tuolumne River, while only a few miles to the westward is the gateway to the great Tuolumne Cañon, which ends in the Hetch Hetchy Valley. It is the great central starting point of the eastern portion of the park, more important in this regard than any other locality in the park, except the Yosemite itself. Its importance as a central location was soon appreciated by the government officers, when one of the principal outposts was located there, and connected by telephone with the Yosemite Valley. Its convenience as a starting point, and its splendid scenic features were also early appreciated by the Outing Committee of the Sierra Club, for the first annual Outing in 1901 was made to Soda Springs, and it has been the policy of the committee to arrange an Outing with this as a base of operations at least once in three years.



THE TUOLUMNE MEADOWS FROM LAMBERT'S DOME, SHOWING THE SODA SPRINGS PROPERTY ENCLOSED IN WHITE LINES.

Photograph by Herbert W. Gleason.


TULE SWAMP
ROCKS AND THIN TIMBER
LINE OF OLD LEMBERT FENCE
LINE OF OLD FENCE
EDGE OF ROCKY HILLSIDE
TRAIL TO MT. CONNESS
Pond
POND
SODA SPRINGS
MAIN SODA SPRINGS
CABIN
SWAMP
ROCKY MOUND
WILLOW SWAMP
RIVER
TUOLUMNE
DOG CREEK
SODA SPRING
FORD
TRAIL DOWN MEADO
MEADOW LAND
UNICORN CREEK
CREEK
TIOGA ROAD
LINE OF OLD LEMBERT FENCE
MC CAULEY FENCE
LIN. OF McCAULEY FENCE
LINE OF MC CAULEY FENCE
3.29 Ch.
49°
T.1S., R.24E., S.7 B.T.
17½
S.8 T.
0
100
500
1000 FEET
SCALE
JOS. N. LE CONTE
JAN. 1913

SKETCH MAP SHOWING TOPOGRAPHIC FEATURES OF THE SODA SPRINGS PROPERTY.

By J. N. Le Conte.

The Club is to be congratulated in securing the control of this valuable piece of property, the only patented holding, save one, in the eastern portion of the national park. It is to be hoped that the Club can keep it for many years, unfenced, open, for the use and enjoyment of the knights of the trail.

To describe the features of the landscape here, the meadow, the forest, the river, and the superb mountain scenery, would require the pen of a Muir. I cannot attempt it. But since our Club has become trustee of so valuable a piece of property, our members, and particularly those who have so liberally subscribed to the fund and those who have seen the place, will be interested in the history of this homestead, and a description of the land itself.

The quarter section was taken up on government land as a homestead by John Baptist Lembert on August 15, 1885, long before the establishment of the Yosemite National Park. Previous to this Lembert had lived in and around Yosemite, and at the time the land was taken up was interested in raising Angora goats, using the fine meadows of the High Sierra as a grazing ground in summer, and driving his flock down to the foothills of the lower Merced in winter. His first efforts on taking possession were directed toward fencing, and building a small log cabin. Here he lived alone with his goats till the stormy winter of 1889-90. In starting for the foothills he delayed a few days too long and was caught by the snow and storm bound in early December. He tried to weather the storm in his small cabin, but finding that impossible was forced to abandon the goats and make his escape to Yosemite.

Having thus lost his entire capital, and with it his means of livelihood, he took to collecting butterflies and botanical specimens in the higher portions of the range. This was a region little explored, and his entomological specimens particularly found ready sale among the museums of the country. By this means he was enabled to hold his claim, living alone in his log cabin, and seeing no one but the occasional camper. Finally on June 28, 1895, he was issued a United States patent to the quarter section.

Lembert lived on his property in summer but spent the winters in a small cabin near Cascade Creek in the Merced Cañon, just below Yosemite Valley. In the winter 1896-97, his body was found in the cabin, evidently murdered for the small amount of money which he was known to have kept always with him.

After his death the property passed to Jacob Lembert, his brother and his only surviving relative. On January 7, 1898, the Soda Springs claim was sold by the Lembert estate to the McCauley brothers of Big Meadows. They took possession and refenced most of the land, and soon after built a new and larger cabin on the rocky knoll west of the spring. This cabin still stands in fair condition, the old Lembert structure, as well as the fences having been crushed by the snow or otherwise destroyed. The McCauleys used the land for pasturing cattle for many years. Many efforts were made to purchase it from them, but, realizing its value, they refused to part with it. In the fall of 1911, J. J. McCauley finally decided to sell, and fixed a definite price. He intimated to certain of our members that if the Sierra Club wanted to buy the land, it would be given first chance. Immediately the Directors of the Club sent out a circular letter to a number of members known to be interested in such an acquisition, and this resulted in bringing in enough money to pay the necessary deposit to hold an option till January 1, 1912. Then followed a second letter to the entire membership, which resulted in enough subscriptions to cover the entire purchase price, Mr. McCauley very generously extending the time of the option to July 1st to give the Club time to make the final collections. On June 26th the purchase was made, and the deed, the original patent and all other papers were turned over to the Directors of the Club.

The property is described in the U. S. Land Office as the southwest quarter of Section 5, Township 1 south, Range 24 east, Mount Diablo meridian, (160 acres). The tract extends directly across the main portion of the Tuolumne Meadows. The two southerly corners are in the meadow, the northerly ones on the timbered hillside above the spring.

The southwest corner of the property, which is also the corner between sections 7, 6, 5, and 8, is in the meadow land. Mr. Jas. Hutchinson and I visited it in the summer of 1912 and found the original corner post gone, but one of the bearing trees was identified: "A tamarack 16 inches in diameter, bears S. 49° W., 3.29 chains distant, marked T. 1 S., R. 24 E., S. 7 B. T." The other was not identified in our hasty examination without instruments.

The southeast corner of the property is identified by a large monument of stones in the meadow land. The original post seems to be gone, but one of the bearing trees was easily identified as: "A tamarack 20 inches in diameter bears S. 17½° W., 1.80 chains distant, marked ¼ S. B. T."

From these two known corners, we were able to establish roughly the boundaries by pacing, and to prepare the accompanying sketch map. It will be seen that two-thirds of the area is meadow land. The Tuolumne River flows directly across it from east to west, and then follows the westerly boundary in a southerly direction, the southwest corner being in or very nearly in the river. The northern part is on the hillside and is covered with a scattering growth of tamarack pine. The two main groups of soda springs and the McCauley cabin are on the property near the western boundary.

The Club should have the property surveyed and the corners accurately established at once, for the original posts are lost and the bearing trees old and liable to be destroyed by storm or fire. The ponds and marshes near the soda spring should be drained so as to reduce the mosquito trouble, which is the chief objectionable feature in the early summer. The cabin should be repaired and kept in good condition for the use of members of the Club, and a supply of good water brought to a point near the cabin. Some time in the future we should have a permanent lodge there with a regular attendant in charge. It is certain that in the near future, when the old Tioga Road is reopened, hundreds of persons will visit the soda springs where tens do now.

MOUNTAIN MISERY.

By Willis Linn Jepson.

The most abundant, widespread, and exclusive undershrub in the lower yellow-pine belt and upper portion of the black-oak belt in the Sierra Nevada is a plant called by the mountaineers mountain misery and by botanists *Chamæbatia foliolosa*. It grows about one foot high, has fine fern-like foliage, flowers like those of a strawberry and an odor recalling tar or tarweeds. It favors open forest or broad "opens" in the forest, usually grows by itself exclusive of other species and covers mountain ridges and slopes for stretches of many miles with an almost unbroken cover. It is not pleasant to walk through; its heavy, rather rank, odor, is disagreeable; no animal will eat it, and run-away animals leave no trail in it for their owner to follow. Tar-bush, Bear-clover, Bear-mat ,Bear-weed, and Jerusalem Oak are other folk-names for it, all significant of its varied characteristics; but none of these spring so completely out of the soil as Mountain Misery, a name redolent of its unpleasant odor, its wearisome monotony, and its lack of use to the mountaineer, in spite of its thriftiness and abundance.

On the other hand, the botanist finds it a rather interesting plant. He calls it *Chamæbatia foliolosa; Chamæbatia* means ground bramble and directly hints of its family relationship to blackberries and the like, *foliolosa* meanwhile referring to its numerous small leaflets (Fig. 1). On account of its abundance and the limited range of conditions under which it grows, it is one of the plants indicative of the lower Transition Zone in the Sierra Nevada. Areas of it beneath very open Black Oak groves sometimes present at a little distance the aspect of a close, well-kept lawn, as beautiful slopes, indeed, as one would wish to see. Its dark-green, lace-like foliage is rather attractive against its almost black bark; a bank of it in full flower beneath the trunks of Yellow Pines is a pleasant sight to Sierrans with

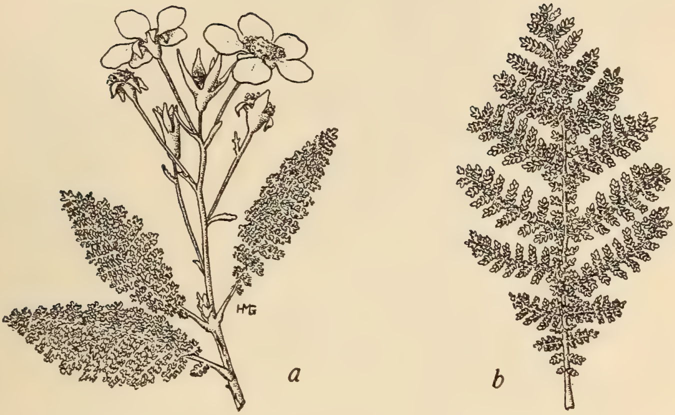


FIG. I. MOUNTAIN MISERY.

a. Characteristic flowering branchlet. *b.* Single leaf, showing its tripinnate character and its numerous leaflets.

their faces towards the high mountains; and a whiff of its distinctive odor calls up the glamour of past days on the trails and ridges.

Chamæbatia foliolosa is confined to the western slope of the Sierra Nevada, between 3,000 and 6,000 feet, from the Tule River north to Nevada County. It does not occur on the eastern slope of the Sierra Nevada, where it is replaced by another plant of the same family (*Rosaceæ*)—namely, the Desert Spiræa, *Chamæbatiaria millefolium*. The two plants have marked similarity in their foliage, but *Chamæbatiaria millefolium* is a rigid, erect bush with reddish bark and flowers in

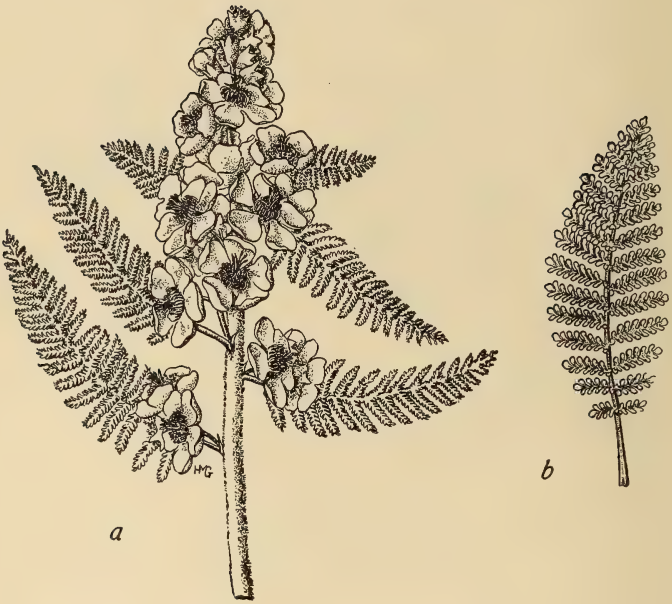


FIG. 2. DESERT SPIRÆA.

a. Flowering spike. *b.* Single leaf, showing its bipinnate character and numerous leaflets.

dense terminal clusters (Fig. 2). It occurs between 5,500 and 9,500 feet altitude, and grows in or on the edges of rock piles. The writer has collected it about Timosea Peak on the trail from Cottonwood Lake to Owens Lake, and near Kearsarge Mill below Kearsarge Pass. While not rare, it is floristically speaking, a rarity as compared with *Chamæbatia foliolosa* of the western slope of the Sierra Nevada.

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The purposes of the Club are:—"To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada Mountains."

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EDITORIALS.

The Hetch Hetchy Situation. A hearing on the Hetch Hetchy question was conducted by Secretary Fisher during the week from the 25th to the 30th of November. The final decision has not been rendered, but on a number of points Secretary Fisher's attitude was made perfectly clear. The City's representatives were informed that the acquisition of the Spring Valley Water Company's properties would have to be a condition of any permit, unless previously acquired, and that the available capacity of this system must be taken into account in estimating the City's needs; that no power privileges would be granted except on condition of immediate development; and that the sanitary protection of the Tuolumne watershed and the extent of its interference with the recreational uses of the park are serious elements in the problem.

Secretary Fisher explained that a fundamental principle of public policy was involved in requiring the City to begin with the purchase of the existing water system; that any other procedure would be an economic waste which the Government was determined to avoid. Consequently it would also have to be a matter of serious inquiry to determine which of the various sources open to the City in the Sierra Nevada or elsewhere would be least subject to the demands of local beneficial use.

The Secretary declined to accept the opinion of the City's specialist that one or two thousand visitors a season is all that ever needs to be counted upon in devising measures of protective sanitation for the Hetch Hetchy watershed. He insisted that the possibilities of pollution be considered on the basis of a seasonal average of at least twenty thousand visitors.

One of the City's experts testified that it would not be necessary to exclude campers from the Tuolumne watershed; that long storage was sufficient to overcome the dangers of pollution. But George C. Whipple, also one of the City's experts and professor of sanitary engineering at Harvard, testified that Hetch Hetchy water would ultimately have to be filtered under those conditions. Surgeon-General Rupert Blue, of the Marine Hospital Service, testified that he would rather drink filtered water from the Sacramento than Hetch Hetchy water under the lax sanitation proposed by the representatives of San Francisco.

Examination of Mr. Freeman's report disclosed the fact that the cost of alternative sources of supply had all been figured on a much higher unit basis than that which was adopted in the case of Hetch Hetchy.

Secretary Fisher called attention to the fact that the Board of Army Engineers had repeatedly, but vainly, asked that the estimates of cost be reduced to a parity for purposes of comparison, and ordered that the City's engineers reduce all the estimates to a common basis within a reasonable time. The decision of the Secretary may be rendered at any time.

Unfortunately, the accounts of the hearing which appeared in the San Francisco papers were intensely biased and misleading. Quite without foundation of fact was the reported split within the Sierra Club. While a few members of the Club have always favored the City's claim, there never has been any serious question about the sentiment of the great majority, and the officers are not aware of any dissension over the matter. W. F. B.

CONSERVATION OF WILD LIFE. Among the notes and correspondence will be found an account of the organization of the California Associated Societies for the Conservation of Wild Life. Eight strong organizations, including the Sierra Club, have delegated representatives to secure more stringent protective legislation for certain birds and mammals of the Pacific Coast. Some species are disappearing so fast that unless something is done at once to check their destruction by hunters they will become extinct in a very short time. The trumpeter swan and the Columbian pin-tailed grouse are entirely gone, while the mourning dove and the band-tailed pigeon are so reduced in numbers now that they bid fair to follow the passenger pigeon to extinction. An endeavor is being made to secure immediate legislative action in the most urgent cases. The sale of American-killed wild game should be entirely prohibited, as it now is in nineteen States, including New York. Evidence on file in the Museum of Vertebrate Zoology at the University of California indicates a diminution of about seventy-five per cent of all game during the last ten years, and most of this destruction is due to the market hunter. It should be clearly understood that legislation which permits hunting for the market is nothing less than class legislation of the worst sort, because it allows a few professional hunters to destroy the sporting privileges of the people as a whole. The claim that hunting for the market is in the interest of the poor man is easily shown to be an absurdity by the fact that wild ducks, for instance, are served only to rich patrons of cafés and hotels, who pay for them as much as two dollars and a half a piece.

It may properly be regarded as one of the higher functions of a mountain club to give support to such movements for the conservation of wild life, and to encourage and commend such rare philanthropic acts as the recent purchase of Marsh Island in the Gulf of Mexico, by Mrs. Russell Sage, to be dedicated as a guarded refuge for the migratory birds of America. This island had long been the most popular haunt of the Southern market gunner, because shorebirds flocked to it by the million—only to be slaughtered. W. F. B.

STATE VS. FEDERAL CONTROL OF NATIONAL FORESTS. There is considerable reason to believe that a strong effort will be made in the near future to turn the national forests over to the States. The friends of Federal control are apprehensive lest this may be accomplished in a moment when the public may not be fully aroused to the danger. The Sierra Club was one of the first organizations to advocate the establishment of national forest reserves, as they were then called, and did much to awaken and direct public opinion so that for many years California had more advanced ideas on the subject than any other State in the Union. Since those pioneer days, the Federal Government has, through its Forestry Bureau and later its Forest Service, accomplished remarkable results in the face of heavy odds. Many of the problems dealt with are national in their scope and when one considers the physical location of forests, situated as they are in the basins of watersheds extending from State to State, without regard for political boundaries, it is evident that the protection of these watersheds can be supervised more effectively under a uniform national policy and control rather than by a score of State bureaus, many of which, we have good reason to believe, would sadly neglect the trust imposed upon them. The Federal Forest Service has built up an organization of splendid efficiency, and to abandon this for the uncertainty of State control would in our opinion be a grave mistake. W. E. C.

OCCASION FOR FRATERNALISM. No doubt many members of foreign and American alpine clubs will visit San Francisco on the occasion of the World's Panama-Pacific Exposition in 1915. It would be a great pleasure, and doubtless a mutual gain, to establish personal relations with them. We take this early opportunity to invite visiting members of mountaineering organizations to make the Sierra Club rooms their headquarters and to call upon us for such assistance as we may be able to render. Those who wish to visit Yosemite Valley or any of the groves of big trees, or any portion of the Sierra, will find the office of the Club a reliable source of information. W. F. B.

JAMES BRYCE. Few men have won distinction in as many fields of endeavor as the retiring British Ambassador to the United States. The Right Honorable James Bryce, diplomat, historian, scientist, mountaineer, is one of the best known and best beloved men in the English-speaking world. Not every one knows that he has physical as well as intellectual feats to his credit. One of these was the ascent, in 1876, of Mount Ararat, which rises to a height of seventeen thousand feet. Fourteen years ago he was elected to the presidency of the British Alpine Club. Last summer he visited Australia and New Zealand. At the time of his return last autumn the Directors of the Sierra Club gave a little dinner for him at the University Club in San Francisco, at which John Muir presided.

It was a delight to hear this vigorous diplomatist, now in his seventies, tell of his travels and his interest in mountains and mountaineering. He also expressed the opinion that children should be taught to take an intelligent and sympathetic interest in the lives of our furred and feathered friends of the mountains and forests; that in this way the natural instincts of childhood can be turned to account for the conservation of our rapidly disappearing wild life. The public benefits of an aroused interest in the conservation of natural scenery were also strongly emphasized by Ambassador Bryce. He thought that by stimulating such an interest in nature more could be done "to improve the morality of the people than could be accomplished by volumes of statute books." In this number we print a part of his admirable address on "National Parks," delivered at the last annual meeting of the American Civic Association in Baltimore. W. F. B.

YOSEMITE VALLEY IMPROVEMENTS. Colonel Forsyth has advertised for bids for the construction of four reinforced concrete arch highway bridges to span the Merced River in Yosemite Valley. Anyone who still doubts the wisdom of the recession of Yosemite Valley to the Federal Government is not familiar with the great improvements which have been made in the valley in the past few years.

W. E. C.

REPORTS OF COMMITTEES.

Report of the Outing Committee for 1912.

The 1912 Outing of the Sierra Club was in many ways the most enjoyable outing the Club has ever undertaken. The trip was planned in such a way as to afford the very best opportunity for visiting all parts of the Kern River Basin. The party was taken in by way of the railroad to Springville, from which point the Kern River is easily reached via Nelson's. Two especially fine groves of "Big Trees" were on this trail. After spending a day or two in the vicinity of Kern Lakes the entire party moved up into Golden Trout Meadows. After recrossing the Kern River the entire party camped on Chagoopa Plateau on the shores of Moraine Lake, which in many respects, with its thick forest shelter, delightful bathing and wonderful surroundings, was one of the most attractive camps the Club has ever had. The majority of the party ascended the main Kaweah Peak and visited all portions of the Big Arroyo Basin. Through the generous work of Messrs. Thompson and Cahill and others, approximately one hundred and fifty golden trout were transported in fish cans from Golden Trout Creek and planted in various fishless lakes and streams. Other streams were planted with rainbow trout from Kern River. As a result of transplanting by the Club in 1908, rainbow trout were caught, the largest weighing 8½ pounds, and measuring 28½ inches in length, and golden trout weighing 3¼ pounds. These latter fish retained their wonderful characteristics, i. e., color, absence of scales and had spots only on the tail and dorsal fin. Mr. Charles Michaels made the first ascent of the middle or Red Kaweah. About sixty members of the party knapsacked to the head of the Big Arroyo and into the Kern-Kaweah and joined the main party at Junction Meadows on the Kern. The first ascent of Milestone Mountain was made and a new pass on the Kings-Kern divide discovered, which promises to furnish a feasible route from the Kings into the Kern River. This will bring Mount Whitney two days nearer the Kings River Cañon. Nearly one-half the party camped near the head of Tyndall Creek and from this base camp some of the members made ascents of Thunder Mountain, Stanford, Junction Peak, Williamson and Tyndall. The entire party moved on to Crabtree Meadow, and over one hundred climbed Mount Whitney (14,502 feet), probably the largest number to make the ascent the same day. Rock Creek was the next camp and the day following the entire party crossed the crest of the Sierra via Army Pass (12,000 feet) and descended to Cottonwood Lakes, where camp was made at an elevation of eleven thousand feet. Golden trout planted here many years ago* were caught, still retaining

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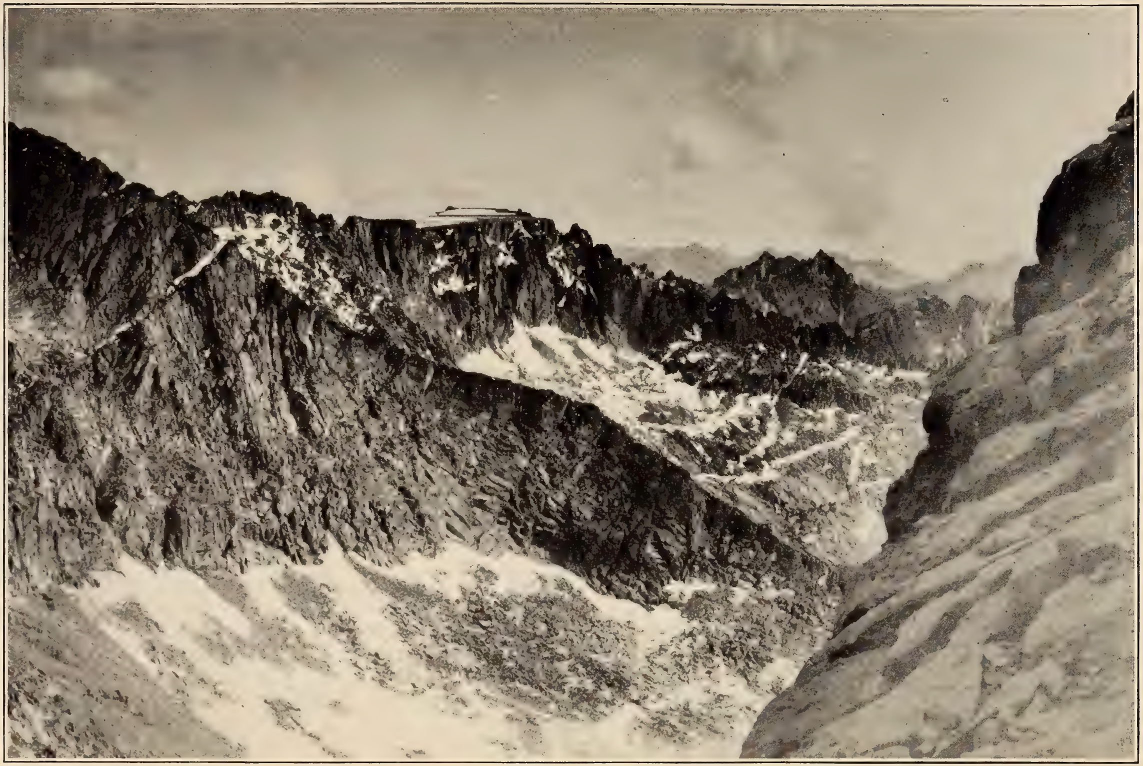
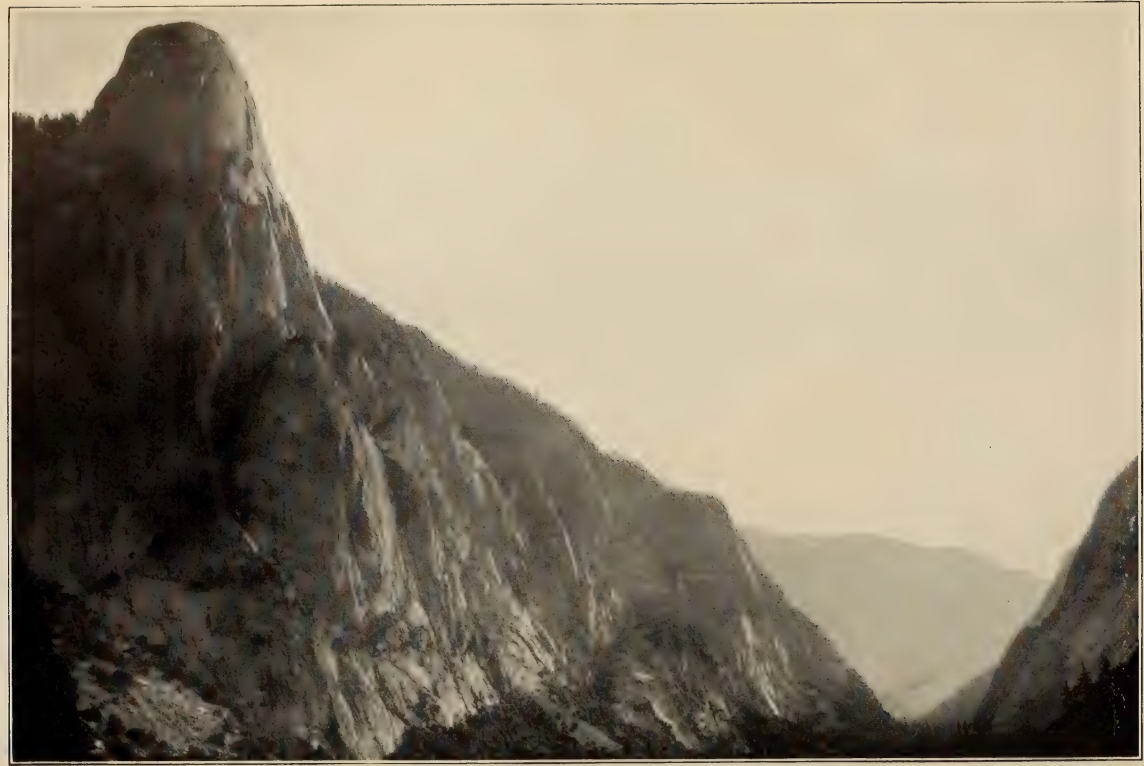
* Vol. VIII, p. 193, Sierra Club Bulletin.



VIEW NORTHEAST FROM MILESTONE—TABLE MOUNTAIN SHOWING ON MIDDLE OF SKYLINE.

Photograph by Francis P. Farquhar.



TEHIPITE DOME AND VALLEY TO BE VISITED BY THE CLUB IN 1913.
Photograph by Walter L. Huber.

their wonderful characteristics, but most of them being marked with broad stripes of brilliant red instead of the golden or orange red color of their native stream. After spending a day here we descended 7000 feet the following day to the mouth of Cottonwood Creek and camped at the railroad crossing. It was a remarkable transition from high mountain pines and temperature below zero, when we left that morning, to the desert with its sage brush for a camp at night.

Our Pullman train stopped at our camp site the next morning, and boarding it we traveled along the shore of Owens Lake for some distance and paralleled the wonderful Los Angeles aqueduct for many miles on our way to Mojave. This means of leaving the mountains proved the easiest and most comfortable we have ever experienced.

There were 185 regular members in the party, and with assistants, cooks and packers the total number approximated 220. The number was limited and many who applied late could not be accommodated.

A new plan for improving the trails was inaugurated this year. The Outing employed and paid for two trail builders; the Forest Service, two; and the Boards of Trade of Visalia, Lindsay, Exeter and Tulare together provided two, making six men in all who traveled a day or two in advance of the party, repairing and improving the main trails. The plan proved a great success and when we left the Kern region the trails were in better condition than they have been for years. The men also had time to brush out and mark a trail leading into the Kern-Kaweah River basin from Junction Meadows. An old trail used to lead into this remarkable basin, abounding as it does in feed for animals, and fine scenery. In recent years, however, it has been practically impossible to get into this region with animals, and in the short time the trail men had to work on this trail, they accomplished wonderful results, so that a member of our party was able to ride over the brushed-out trail and lead a pack animal with loaded fish cans into the very head of the Kern-Kaweah region, hitherto fishless. When one considers the general lack of feed in the Kern River region, one can appreciate the desirability of having this Kern-Kaweah country opened up for tourists, since it will add a large amount of feed at a point where it is very much needed.

We were so pleased with the experience of crossing the Sierra and leaving the mountains on the east that we have planned to visit the Kings River Cañon and Tehipite Valley this coming summer and to enter this region via Kearsarge Pass from Independence. The Middle Fork of the Kings River is one of the wildest and most attractive cañons in the whole range and the 1913 Outing promises to be one of the best the Club has ever taken. A preliminary announcement of this trip has already been issued.

Respectfully submitted, Wm. E. Colby,
J. N. Le Conte,
E. T. Parsons,
Outing Committee.

Report of Le Conte Memorial Lodge Committee.

Season of 1912.

The following report of our custodian records another successful season and demonstrates the value to the general public of the work done and information so carefully prepared and freely given out. It will be seen that many show their appreciation in tangible ways, and support freely given our work at this point will be appreciated.

To the Le Conte Memorial Lodge Committee:

The Le Conte Memorial Lodge in Yosemite Valley opened for the season of 1912 on May 16th and closed August 12th. Nearly three thousand names were on the register, which comprised about half of the visitors, as a number never register. But many of the same people came again and again, so that a fair estimate of the total number would be about six thousand.

As usual, the botanies, maps, and books on the natural sciences were most in demand. The custodian was asked many questions about the Sierra Club and its work. A greater interest in the upper country, viz., the Tuolumne Meadows and vicinity was manifested this year. A few people even claimed that they visited that region through first having their interest aroused by the pictures and information found in the Lodge. The custodian felt that the above pictures were very insufficient and would suggest that Club members remember their club-room in the Yosemite when donating albums.

There were again many inquiries for a photograph of John Muir, which is still lacking in the Lodge; also for his new book on the Yosemite.

The herbarium collection grew to such dimensions that there was not wall space sufficient for the specimens. It has been suggested that a number of the postal cards with photographs of the commonest plants be tacked up above the flower screen. They take up very little space and cost but two or three dollars at the most, and can be procured at the different galleries in the valley.

The thanks of the Club and the custodian are due to Major Forsyth for his many courtesies.

The following donations were received for the library:

SONGS OF YOSEMITE . . . . By *Harold Symmes*
Presented by Miss Mabel Symmes.
A YOSEMITE FLORA . . By *Harvey Monroe Hall* and *Carlotta Case Hall*
Presented by Professor Harvey Monroe Hall.
THE NORTH AMERICAN FAUNA, No. 16 . . . By *C. Hart Merriam*
Presented by Dr. C. Hart Merriam.
ELSIE VENNER . . . . By *Oliver Wendell Holmes*
OLD MAM' SELLE'S SECRET . . . . By *E. Marlett*
LORNA DOONE . . . . By *R. D. Blackmore*
Presented by Miss Barbara Burke.

SUSAN CLEGG AND A MAN IN THE HOUSE . .	By *Anne Warner*
DON-A-DREAMS	By *O. H. Higgins*

Presented by Miss Charlotte Williams.

SIR WALTER SCOTT'S POEMS . . . Presented by Mr. J. B. Wade

About twenty specimens of rock brake, cliff brake and coffee ferns were presented by Mrs. Wm. Johnston of San Francisco. The above had been gathered in the valley in 1878 by the donor.

Anita Gompertz, *Custodian.*

The committee has in hand the following books intended for the Lodge Library when it opens for the season of 1913:

GEOLOGICAL SURVEY OF CALIFORNIA—GEOLOGY . . By *J. D. Whitney*
Presented by Galen Clark. Rebound.
GEOLOGICAL SURVEY OF CALIFORNIA—ORNITHOLOGY . By *J. G. Cooper*
THE YOSEMITE GUIDE-BOOK . . From *Geological Survey of California*
THE SILVA OF CALIFORNIA . . . . By *Willis Lynn Jepson*
Presented by the author.
MT. WHITNEY CLUB JOURNAL, Vol. I.
SIERRA CLUB BULLETINS, Vols. VII and VIII.
APPALACHIA, Vol. XII.

The committee suggests the donation of works relating to the natural sciences, mountaineering and out-door life in any of its phases. The Sierra Club Library in the Le Conte Memorial Lodge is available not only to tourists and visitors to the Yosemite National Park, but also to the more or less permanent residents in the valley, and is much resorted to, serving a good purpose in more ways than one.

Respectfully submitted,

Lydia Atterbury,
J. N. Le Conte,
E. T. Parsons, *Chairman,*
Le Conte Memorial Lodge Committee.

NOTES AND CORRESPONDENCE.

In addition to longer articles suitable for the body of the magazine, the editor would be glad to receive brief memoranda of noteworthy trips or explorations, together with brief comments and suggestions on any topics of general interest to the Club. Descriptive or narrative articles, or notes concerning the animals, birds, fish, forests, trails, geology, botany, etc., of the mountains, will be acceptable.

The office of the Sierra Club is Room 402 Mills Building, San Francisco, where all Club members are welcome, and where all the maps, photographs, and other records of the Club are kept.

The Club would like to secure additional copies of those numbers of the Sierra Club Bulletin *which are noted in the list in this number as being out of print, and we hope any member having extra copies will send them to the Secretary.*

Mount Goddard and the Head of Evolution Creek.

I left the office here on June 21st for a trip which took me to the Middle Fork of the Kings River, up Cartridge Creek, up the head of the North Fork of Kings River, across by the Devil's Punch Bowl and Hell-for-Sure Pass, to the head of the South Fork of the San Joaquin. On August 1st District Ranger Boothe and myself left camp at the lower end of Martha Lake and made the ascent of Mount Goddard. The day was exceptionally clear and we could take in everything almost from Mount Lyell to Mount Whitney. Register Book No. 1 of the Sierra Club was examined and found to be somewhat mutilated, but still very legible. (This book, as you know, was placed on the summit of this peak in 1896.) I ascertained that fifty persons, including Boothe and myself, had registered since the establishment of the register. We prospected for a possible horse trail from the head of Martha Lake around the southeast side of Goddard to the upper end of Wanda Lake, but found an impassable barrier in a 300-foot cliff just this side of one of the numerous lakes which dot this country.

On our return to camp we found that Supervisor Hogue and Ranger Crow, of the Inyo National Forest, in whose company we had been for some time, had gone around the northwest side of Goddard to Lake Wanda and found that it would be possible, by doing two or three hundred dollars worth of work, to get a horse trail through to that lake. They reported the route at present as dangerous and we decided not to tackle it, as we had nine head of stock and did not care to take the chance of losing any. We moved camp the next day to a lake at the head of one of the forks of Evolution Creek, from which Professor Le Conte had shown a possible cut-off trail to the head of Piute Cañon. On the following day, Supervisor Hogue and myself went up to the two passes above this lake and decided that, with a little work, it would be possible to get our stock into Piute. The four of us worked on August 4th cribbing up the trail down a very steep slope on the Piute side. On the next day we took our horses to the head of the lake on the north side of what is known, on the Goddard quadrangle, as the Glacier Divide. When we reached this lake we found that we had not prospected far enough, and, after a hurried reconnoissance, ascertained that it would be necessary to do a great deal of work to make a passable trail over the rock fields surrounding the lake. For this we needed tools, and I walked to Blaney Meadow, sixteen miles away, to get the proper tools, returning next day at noon. I found the rangers hard at work chinking the trail through the rocks. With the aid of the tools and additional help, we managed to get the horses out to a little feed at the foot of the first lake that night, and by working hard the next day, finally made out into Piute Cañon on the 7th. We monumented the trail from John Shipp's old sheep camp on the bench above Evolution Creek to the lower lake on the Piute side. I would certainly not advise anyone to attempt to make this trip with any horses that he cared about. We were very lucky to get out without injury to the stock, and this is largely due to the fact that the snowfall has been unusually light this year. We were able to get through, I believe, because of the absence of immense snow-banks that are usually found on the north side of the Glacier Divide. If there were no more snow any year than there was this year, it would only take about one hundred dollars to construct a good burro trail over the ridge which we followed, but before advising any one to tackle it, even with burros, I would suggest that the route be investigated on foot most thoroughly before taking any stock in.

Evolution Creek and the South Fork of the San Joaquin, as well as Piute and French Cañon, are to my mind ideal streams for fishing purposes and I plan to make some attempt next year to see that some of these streams are stocked with a suitable species of trout.

Paul G. Redington,
Forest Supervisor Sierra National Forest.
North Fork, Cal., August 16, 1912.

The Value of Winter Sports.

One of the most wholesome and encouraging signs of the times and the most triumphant proof of the conquest of the human body over the Frost King is the increasing vogue and popularity of winter sports and winter outdoor games of all sorts, even during the chilliest and most inclement days of the year. The most delightful and exhilarating sports of the whole year are those which can be indulged in only in times of frost and snow, such as snowballing, skating, hockey upon the ice, curling, skeeing, coasting, tobogganing, and snowshoeing.

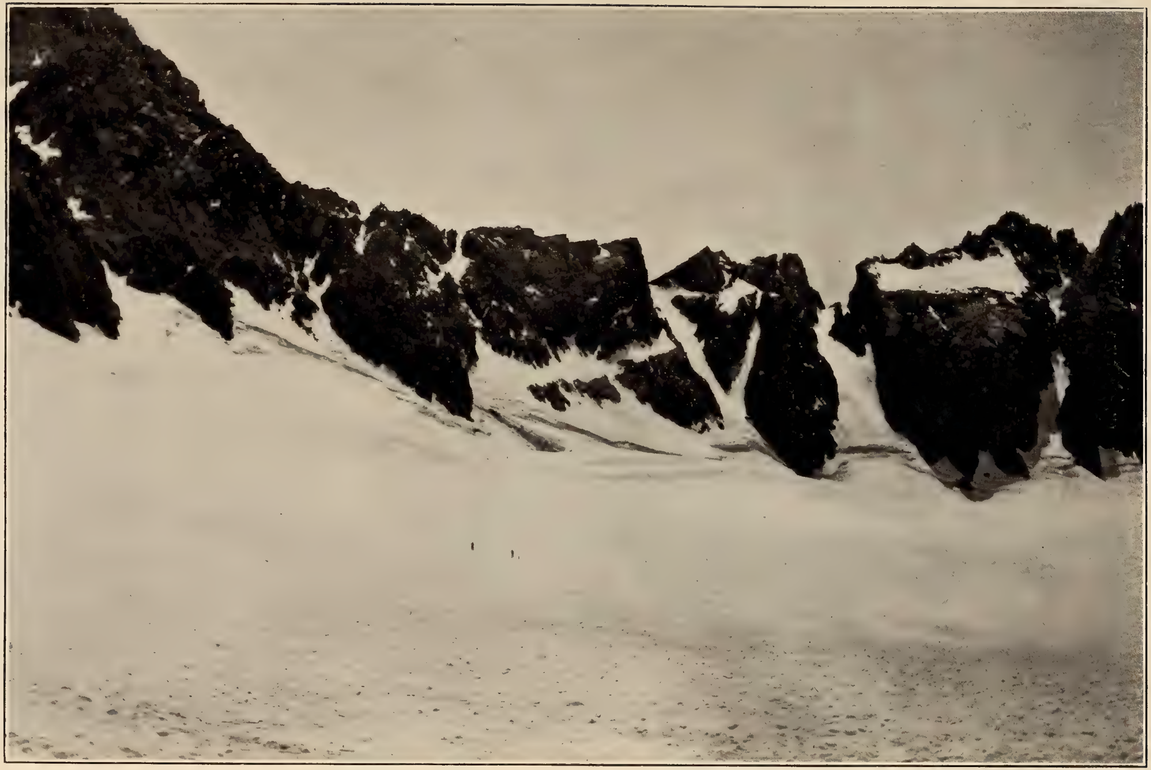
We have begun to rediscover the country and to realize that it has charms not only in summer but in winter. It is even becoming as fashionable to go out of town for Christmas as it is for the Fourth of July or the midsummer holidays. We are so much better fed, better clothed, better housed and protected from infection and contagion that we can positively enjoy and delight in exposure to winter cold and chilling blasts, which our ancestors would have shrunk from with dread.

One of the most interesting changes which strike the visitor to Switzerland in the last ten years is the remarkable extent to which the fashionable season and crowd of visitors in that charming little country has been changed. Twenty years ago Switzerland, the playground of Europe, was almost exclusively a summer resort; now it has become emphatically a winter resort, and all the really smart and fashionable people of England, France and Germany spend not their July and August or September in Switzerland, but their Christmas holidays and the greater part of January. It is distinctly "poor form" to go to Switzerland in summer.

Already some of our famous summer mountain resorts, in the Adirondacks, the Alleghanies, the Berkshires, the White Mountains, the Green Mountains, and the rugged hills of Maine are beginning to open for a winter season as well as for summer. For a bracing, refreshing change, and a complete reversal of the ordinary currents of life, a week at Christmas time will do the tired business man or the worried housemother almost as much good as two weeks in July or August. Though, of course, they should have both. The best possible Christmas present you can make your children is a week of skating, tobogganing, and snow-tramping in the country. The most valuable and highly appreciated New Year's gift for your employees is three or four days' extra vacation *with* full pay, for skating and coasting just after the Christmas rush. Do not waste your time and money and nerve force giving ridiculous presents to people which they cannot use and are not allowed to throw away. Give them vacations, excursion tickets, week-end invitations to the country, snow picnics and ice parties.

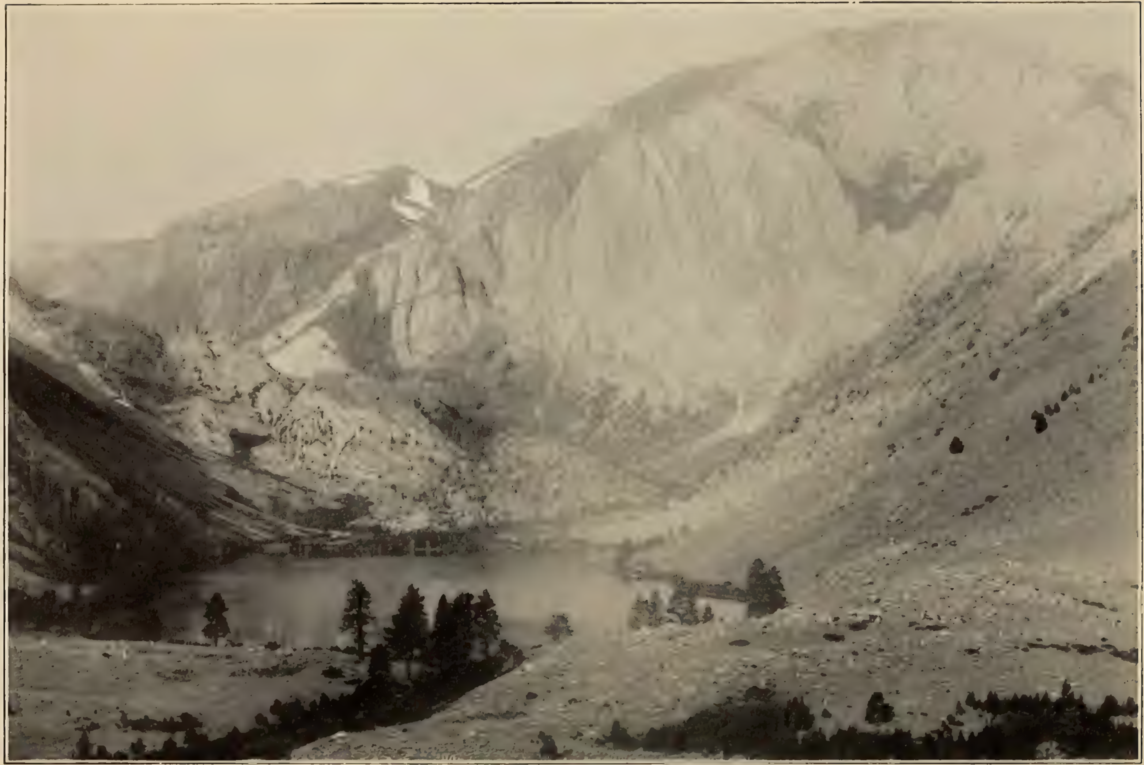
Christmas has become little short of a sanitary nuisance of late years; a nerve-racking, treadmill grind of "pay-back" present-giving, an orgy of bankrupt livers, "busted" pocketbooks, theater parties, restaurant suppers, and other forms of foul air suicide. Here's a chance to take the curse off and get back to pristine simplicity, joyousness and wholesomeness. Spend your day on the crisp snow of the hill amid the creak of the sled-runners or on the diamond-black ice of the river, to the singing and ringing of the skate-blades, instead of in some matinée where the air would curdle if you poured acid into it, or even some church where last Sunday's collection of bugs is warmed up and served over again, and you'll have a plenary indulgence and dispensation for all the turkey and mince pie you want to eat.

We are only just beginning to realize as we should the advantages of our American climate and the charms of the Christmas season. It is not necessary for us to go to the Alpine summits; we have the snap and sparkle of the Alps at our very doors.



NORTH PALISADE GLACIER, ONE OF THE LARGEST OF THE RESIDUAL GLACIERS OF THE SIERRA.
The North Palisade appears on the skyline to the extreme right.

Photograph by Walter L. Huber.



WIT-SA-NAP, THE INDIAN NAME FOR CONVICT LAKE, NEAR BISHOP, INYO COUNTY.

Photograph by A. A. Forbes.

Every town and suburb should be provided, just as it now is with parks, beaches, and swimming-pools for summer, with coasting places, slopes for skiïng, artificial if necessary, and wide stretches of grounds which can be flooded for skating, curling, hockey, and all the sports which can be played on the ice.

The Saturday half-holiday, instead of remaining solely a summer institution, should obtain the whole year round, especially in winter, so that those who are confined constantly in the stuffy air of stores, offices, and factories could gain the healthful exhilaration that comes from exercise in the brisk, frosty, open air. In Germany banks are beginning to encourage their clerks to take their vacations in winter. Even the sacred hours of school session should be made flexible, instead of like the laws of the Medes and Persians, which alter not.

Whenever a clear, brilliant sky, a keen bracing wind, and a fresh glittering spread of snow, or good skating ice occurs, books should be closed, lessons and recitations dismissed, and teacher and children turned loose in the open air to engage in sports and games. There is nothing which they can possibly learn out of a book which would be half so helpful and educational in the broadest sense of the term as a good game of snowballing, or storming snow forts, or hockey, or prisoner's base on skates. — *Woods Hutchinson, M. D., in Good Housekeeping.*

Indian Name of Convict Lake, and Legend.

Wit-sa-nap, the Indian name for Convict Lake, bears the following legend:

The streams which flowed from the mountains were supposed to be filled with Pot-sa-wa-gees, water babies, who lived in spirit, but were visible to the eye, having the face of an Indian child and the body of a fish. Hi-na-nu was a wise and good man; whose spirit the Indians reverenced, and to whom they looked for guidance in earthly matters. However, he was endeavoring to capture the Pot-sa-wa-gees as they traveled up stream. When the source of the streams were reached the water became so shallow that the water babies were in great danger of being taken by their pursuer. They prayed to the Great Spirit for aid, and in answer he caused the waters to flow up hill and to join the waters flowing down from the mountains, uniting in one large, deep lake, wherein the little spirits found safety—Wit-sa-nap, the Convict Lake of to-day. Mrs. A. A. Forbes.

[The change of name from Convict Lake to Wit-sa-nap would seem most commendable.—Editors.]

October 9, 1912.

My Dear Sir: Pray convey to the members of the Sierra Club my sincere thanks for the honor they have done me in electing me an Honorary Vice-President. I had the pleasure of meeting a few of the members at dinner in San Francisco when I passed through there, but give myself the pleasure of returning my formal thanks in this way, and of expressing the hope that I may some time be fortunate enough to be present at a large meeting of the Club, of which I am proud to be a member. I am, dear Mr. Colby,

Very faithfully yours,
James Bryce.

Villa Margherita, Via Privata Asquasciati,
San Remo, Italy,
September 21, 1912.

The Secretary of the Sierra Club,
402 Mills Building, San Francisco.

Dear Sir: My old friend, the late Mr. Whymper, was the fortunate possessor of a complete set of the [Sierra Club] Bulletins, beautifully bound in half-levant morocco by Zaensdorf. A few years ago, on learning that he was disposing of part of his mountaineering library, I wrote to him that I should be very glad to acquire his set of the Bulletin. His reply was characteristic. "I shall not part with that work," he wrote, "until I join the Diet of Worms." His copy was sold at auction in London last month, but I was not fortunate enough to obtain it.

Very truly yours,
Henry F. Montagnier.

Upper Basin, South Fork Kings.

If it is of any interest to you, you may note that I monumented a route from the lower end of the long meadow at the north end of the Bench Lake Flat, straight north, and down into Upper Basin, slightly above the junction of Taboose Creek and Kings River. This way is free from rocks, and is very much shorter than the regular trail into the Taboose Pass Trail. I also put up a large monument on the west side of Kings River, just where the trail crosses to climb the west wall to the Cartridge Creek Pass. I have known so many people to miss this pass entirely that I thought it would be well to put up a good mark at this point.

I found that the trout planted by Ober in the Bench Lake had already reached a size of 14 inches and were very game. I could not find a trace of trout in the Upper Basin, although I am under the impression that it was stocked at the same time that the Bench Lake was.

Yours truly,
B. Macomber.

Mr. Wm. E. Colby,
402 Mills Building, San Francisco, Cal.

CALIFORNIA ASSOCIATED SOCIETIES FOR THE CONSERVATION OF WILD LIFE.

There is no recovery of an extinct species; conservation or devastation —which shall it be?

Common sense demands the regulation of hunting in such a way that our wild life will persist as a permanent asset.

At a meeting held recently in the rooms of the Sierra Club in the Mills Building an organization was formed which promises to be a powerful factor in effecting the protection and propagation of wild life in this State. There were present representatives of the Sierra Club, Tamalpais Conservation Club, State Humane Assocation of California and San Francisco Society for the Prevention of Cruelty to Animals, Cooper Ornithological Club, Paleontological Society of the Pacific Coast, California Academy of Sciences, State Fish and Game Commission, Pacific Coast Biological Society, and California State Audubon Society.

The California Associated Societies for the Conservation of Wild Life is the title of the new organization, which is made up of societies and associations throughout the State directly or indirectly interested in the native birds and animals and having an aggregate membership of many thousands.

Professor W. F. Badè of the Pacific Theological Seminary, Berkeley, and a Director of the Sierra Club, was elected President; Professor W. P. Taylor of the Ornithological Club and California Museum of Vertebrate Zoology, Secretary. Others on the Executive Committee are: J. Grinnell, Professor L. L. Burlingame, J. H. Cutter, Matthew McCurrie, Bruce Martin, W. Leon Dawson.

The objects of the organization are to secure by legislation and other practical means the preservation of several species of California birds and mammals which are approaching extinction. Notable among those which the association will seek to protect are the wood duck, land otter, California condor, white-tailed kite, southern sea otter, Columbian sharp-tailed grouse, trumpeter swan, and grizzly bear. These last three are said to be practically extinct.

The association will proceed at once to draft and prepare for introduction at the coming session of the Legislature a number of laws and amendments which will radically change existing statutes in regard to game and other animals. Among the changes which it will attempt to accomplish will be:

A law prohibiting the sale in California of any American-killed wild game;

A law prohibiting the use of automatic "pump" guns and silencers;

The abolition of the game districts as at present outlined within the State, and, if necessary, a redistricting according to life zones and faunal areas;

A law providing for the establishment of State game refuges;

A law providing for the breeding of game in captivity, and the sale of such game under license.

A law placing the assistants and game wardens of the Fish and Game Commission on a civil-service basis;

Abolition of county game laws, except where a county desires to extend restrictive measures, and encouragement of a strong centralized administration of game laws by the Fish and Game Commission;

The shortening of the season on certain game birds and the placing of certain birds now considered game birds on the protected list;

Reduction of the bag limit on certain birds;

A law providing for the protection of the bear, raccoon, mink, badger, marten, fisher, otter, red fox, wolverine, skunk, and ringtailed cat during all seasons except the winter months, when their fur is prime, or when doing damage to private property.

The association particularly advocates a law prohibiting the sale of game and a law placing the employees of the Fish and Game Commission on a civil-service basis, so that their appointment may be taken out of politics. It strongly recommends the establishment of game refuges and a law providing for the raising of game in captivity for sale under license.

Matthew McCurrie, who was present at the meeting as a representative of the State Humane Association and the San Francisco Society for the Prevention of Cruelty to Animals, strongly urged the endorsement of a law prohibiting the use of steel traps for bear and other large game, claiming that such traps not only caused great suffering to trapped animals, but were a constant menace to human beings who might chance upon them when set. The meeting took occasion to warmly endorse the present Fish and Game Commission, expressing, as the objects of the new association, a desire to co-operate with the board and further the work of conservation it has already undertaken.

Oregon Caves National Park.

Portland, Oregon, January 17, 1913.

Sierra Club,
San Francisco, California.

Fellow Citizens: May the Mazamas ask a favor of you in the interest of the preservation of nature?

Pending before Congress at the present session is a bill introduced by Hon. Jonathan Bourne, Jr., United States Senator from Oregon, purporting to create the Oregon Caves National Park. Such action will necessitate the setting aside of one township in the mountains of Josephine County. Citizens of the State, and particularly the Mazamas, are much interested in seeing this park created. Through your powers of suggestion, the Sierra Club, we believe, may be of considerable assistance. If it is within the province of the organization we would ask that the Sierra Club drop a line to members of the California delegation at Washington, soliciting their influence in favor of the proposed park.

The Josephine County caves take rank with the natural wonders of the world; they have never yet been fully explored; nobody knows what future exploration may reveal; yet such investigation as has been made establishes the fact that these caves are greater, not only in size, but in geological interest, than the renowned Mammoth Caves of Kentucky. A large mountain is honeycombed by the caves, and the lobbies, chambers and galleries contain marvelous specimens of stalactites and stalagmites. Joaquin Miller, "The Poet of the Sierra," has visited the caves. He pronounced them wonderful, and names which he conveyed still exist, such as "Dante's Inferno," "Ghost Chamber," Bridal Chamber," and "The Thorne."

These caves lie in township 40 south, range 6 east, and are accessible through Grants Pass. The Mazamas contemplate visiting the caves in the spring or early summer—probably for a three-day stay the week-end beginning Memorial Day, May 30th, the trip being the outgrowth of correspondence with the Grants Pass Commercial Club. The caves are about thirty-five or forty miles from Grants Pass, and can be reached only by automobile or stage routes. However, citizens of Grants Pass have agreed to furnish free automobile transportation for the Mazama party to the end of the wagon road, six miles from the caves. More than one hundred Mazamas are expected to make the trip (the expenses will be nominal, for we expect to have our own commissary), and we shall welcome any and all members of the Sierra Club who would care to visit the caves along with us. Let this serve as an invitation to all of you.

Perhaps mountaineering organizations are not directly interested in caves; yet the purposes of the Mazamas are to explore mountains "and to aid in the preservation of all features of mountain scenery in their natural beauty." If the Sierra Club feels disposed to assist in this matter of giving governmental protection to one of the wonders with which the Creator has so singularly blessed the great Pacific Coast, the Mazamas will appreciate it.

Wishing your members continued good health and prosperity and with the greetings of the Mazamas to the Sierra Club, I am,

Yours very truly,
E. C. Sammons,
Corresponding Secretary.

NATIONAL PARKS.

VIEWS OF CHIEF FORESTER GRAVES.

October 15, 1912.

MR. JAMES G. ROGERS,
401-9 McPhee Building,
Denver, Colorado.

Dear Mr. Rogers:

. . . There has evidently been a complete misunderstanding of the attitude of the Forest Service toward the national park question in general and of the Estes Park problem in particular. I can explain in no other way the misrepresentations which have been made regarding our policy.

Let me say in the first place that the problem of national parks is most intimately related to that of the national forests in the following ways:

1. Many of the parks are surrounded by or adjacent to national forests. They contain large areas of heavy timber, whose protection presents the same problems as the neighboring forests and which should be brought under a co-ordinate protective system. The forest and park authorities have already inaugurated this system.

2. There are many areas of national forests which will later be made into national parks. The Forest Service has already been gathering information regarding such areas with a view to administering them from the park standpoint pending the time of their formal establishment as parks.

3. There are many areas in the forests which present features of great scenic value but are not large enough to justify separate organization as national parks. These areas are being searched out by the Service and will be handled with the viewpoint of their protection and development along scenic lines. Thousands of lakes and areas of special beauty and grandeur will be brought under this system.

4. A multitude of problems of park administration in addition to fire protection requires the forester's knowledge of the habits and development of forest stands and forest trees. The whole experience of the Service and results of our experimental work in reforestation and forest growth will be available for use in the parks.

I cannot help resenting the imputations that I am unsympathetic with the park problem. For years I have been intimately connected with the problem as it touches the handling of forests. I took occasion in my studies in Europe nearly twenty years ago to investigate personally the methods employed in such areas as the municipal forest parks of Aix la Chapelle and Baden-Baden, the hunting parks of the Emperor of Austria, and many others. The problem has been a constant one in my advisory work in this country. Since entering upon my present work I have not written upon the subject of national parks for two reasons:

first, because the problems of national forest administration have commanded my whole attention, and, second, because the parks are under the jurisdiction of another department. I have, however, repeatedly expressed my opinion in public and to committees of Congress regarding the necessity for a broad policy of park development and for the immediate organization of adequate machinery for carrying it out. I have been advocating the establishment of a Bureau of National Parks as the first step. The subject is a great deal bigger than that of a single park. It involves the question of a consistent, far-reaching and stable policy touching the choice of areas for parks, the principles of locating the boundaries, and the administration and development of the parks to meet the needs of the public seeking to enjoy their benefits. The question of establishing the boundaries is one not yet settled at all and it is one which touches the fundamental principle of park administration.

The park problem is a national one. We are going to Congress to ask adequate appropriations to protect, administer and develop the parks. With clearly defined policies and a fully organized administration, we can go before the country and ask the support of the whole nation for the work. The establishment of new parks in conformity to these established policies and financial support will then be forthcoming. I have devoted my efforts in national park matters to these broader phases of the problem and have deliberately urged delay on many individual projects until they could be settled. I regard them as important not only to put the park development on a more consistent and stable basis, but also because of the practical question of getting legislation to set aside the parks and to grant the Federal financial support necessary for the proper administration.

In regard to Colorado, I think that we should consider not only Estes Park, but also other areas, as possible national parks. Colorado has wonderful mountain scenery which is not appreciated by the country at large. I am impressed by this in every visit. It will be the task of the Bureau of National Parks to decide whether to recommend other areas than Estes Park for special development under the park system.

I am not opposed to the establishment of Estes Park as a national park. I am unwilling, however, to embarrass the Department of the Interior by making any recommendations until its officers have had an opportunity to reach a conclusion. If the Secretary of the Interior concludes that this area should be set aside as a national park, I shall not only give my heartiest concurrence, but will aid in every way I can to promote the project.

I hope that some time you will permit me to ally myself with your Mountain Club. Very sincerely yours,

(Signed) H. S. GRAVES,
Forester.

EXTRACTS FROM 1912 REPORT OF SUPERINTENDENT OF YOSEMITE NATIONAL PARK.

The urgent recommendations of previous years that the Government extinguish the title to all patented lands in the park is renewed.

There are approximately 20,000 acres of these lands, consisting of timber claims and a few claims that were taken up under the homestead act and were never occupied as homesteads, but simply used as a pretext for bringing in stock or cattle to stray upon the park lands. There are no persons now residing on patented lands within the park, except Mr. Kibby, at Lake Eleanor.

The timber claims are valuable and are increasing in value very rapidly. Perhaps the finest sugar-pine timber in California lies within the park along the road from Wawona to Chinquapin, and most of it is on patented lands.

The Yosemite Lumber Co. has built a logging railroad from El Portal to near the park boundary in the vicinity of Chinquapin, and is now cutting timber there and shipping the logs to Merced Falls, where it has built a large sawmill. This company has also surveyed a route for continuing the logging railroad through the park to Alder Creek, where it claims the ownership of 6,000 acres of timber lands. The work of denudation in the vicinity of Chinquapin has already begun, and it is what will happen to the timber on all the patented lands in the park in the near future unless they are purchased by the Government.

This matter demands urgent attention. The necessity of preserving the forest in this portion of the park and of reducing the number of private claims to such an extent as would justify the Federal Government in purchasing the remaining claims was one of the main reasons that caused the Yosemite Commission of 1904 to recommend the reduction of the area of the park.

That commission, as has every other person who has been charged with the welfare of the park or with making any recommendations in regard to it, recommended that the Government immediately purchase and extinguish all private rights.

A new trail branching off from the Mirror Lake-Tenaya Lake trail at Snow Creek was built to the North Dome, and thence to Yosemite Point, and also a new trail from Tenaya Lake to Clouds Rest, passing between Clouds Rest and Sunrise Mountain. All the old trails about Yosemite Valley were repaired and maintained in good condition during the season, and the following trails exterior to Yosemite Valley were repaired and improved:

[NOTE.—This trail work includes the repair of 150 miles of trails in the vicinity of Tuolumne Meadows and Hetch Hetchy Valley.]

The total number of visitors to the park during the season of 1912 was 10,884.

WM. W. FORSYTH,
Major, First Cavalry, U. S. Army,
Acting Superintendent Yosemite National Park.

EXTRACTS FROM 1912 REPORT OF RESIDENT ENGINEER, YOSEMITE NATIONAL PARK.

For a distance of 3,085 feet a Telford base has been covered with macadam to a width of 22 feet. The macadam has a thickness of eight inches at the center and three inches at the sides, requiring about 1,970 cubic yards per mile. This work cost $1.86 per linear foot of road.

For a distance of 4,485 feet a roadbed was graded, covered with a Telford base, and curbed with stones, the width being 22 feet. This work was done at a cost of 64 cents per linear foot of roadway.

All of the above road work was done on the road between Camp Ahwahnee and the Pohono Bridge.

The water supply of the Yosemite Valley is obtained from springs at the foot of the cliff below Glacier Point. A new collecting well has been built and put into service that catches water that has heretofore escaped around the old spring house and could not be used as a part of the supply. It is intended to build another collecting well, and at its completion practically all of the water at this source will become available for use in the valley. Six thousand feet of 8-inch cast-iron water pipe has been installed, taking the place of an old steel pipe line, a portion of which has been taken up and relaid to form a temporary line from Yosemite Village to Camp Yosemite, the old one being too small to furnish sufficient water. It is important that the water system be completed with cast-iron pipe of suitable sizes, so that a sufficient water supply may be assured and adequate fire protection provided for the buildings of the valley.

Wing dams have been built into the Merced River at points where the banks have been subject to heavy erosion.

DAVID A. SHERFEY,
Resident Engineer.

EXTRACTS FROM 1912 REPORT OF THE SUPERINTENDENT OF CRATER LAKE NATIONAL PARK.

The total number of visitors to the park during the season was 5,235.

Crater Lake is well stocked with rainbow trout; those caught are usually from 14 to 20 inches in length, and some have been caught 24 or 26 inches long and weighing 6 or 7 pounds.

W. F. ARANT,
Superintendent.

EXTRACTS FROM 1912 REPORT OF THE ACTING SUPERINTENDENT OF THE GLACIER NATIONAL PARK.

The Glacier National Park was established by the act of Congress approved May 11, 1910, (36 Stat., 354), and is located in northwestern Montana. It embraces over 1,400 square miles of the Rocky Mountains and adjacent territory, extending north from the main line of the

Great Northern Railway to the Canadian border. The eastern boundary is the Blackfeet Indian Reservation, and the western boundary is formed by the Flathead River. The park, which is irregular in shape, has an area of approximately 915,000 acres. Its greatest length in a northwesterly-southeasterly direction is about 60 miles, with a maximum width approaching 40 miles.

Within its borders are attractions for the scientist, nature lover, and tourist unsurpassed in any country in the world, tourists of world-wide experience pronouncing it the Switzerland of America. The elevations in the park range from 3,100 feet to over 10,400. The central portion of the area on the northwestern-southeastern axis is high and rugged and in sharp comparison with the open plains of the east and the valley of the North Fork of the Flathead River on the west. Within its confines are 60 active glaciers, these ice sheets being the sources of beautiful cascades and roaring mountain streams flowing into innumerable, clear, placid lakes for which the park is famed, the most noted of these being Lake McDonald, Lake St. Marys, Lake Louise, Iceberg Lake, Red Eagle Lake, Kintla Lake, Bowman Lake, Waterton Lake, Logging Lake, Quartz Lake, Harrison Lake, and Two Medicine Lake. Lake McDonald, the southern end of which is situated 2½ miles from Belton, a station on the main line of the Great Northern Railway, is one of the most beautiful lakes in America. It is about 3,150 feet above sea level, nearly 10 miles long, two miles wide, and surrounded by mountains covered with virgin forests of western larch, cedar, white pine, Douglas fir, spruce, and hemlock. Upper Lake St. Marys is on the eastern side of the mountains, about 32 miles northwest of Midvale. It is about 10 miles long, with a maximum width of one mile, and toward the upper end the mountains rise in rugged walls not far from the water's edge. Its elevation is about 4,470 feet above sea level. The principal glaciers in the park are Blackfoot, Grinnell, Harrison, Pumpelly, Red Eagle, Sperry, Kintla, Agassiz, and Chaney, and there are areas in which the "hanging" glacier type is well illustrated. In most of the lakes of the park there is excellent fishing at certain times of the year, and at others many of the streams afford fine sport with hook and line. Within the park boundaries there are many varieties of game which are indigenous to this section of the country, such as bear, elk, moose, deer, big-horn sheep, mountain goat, mountain lion, as well as the smaller furred animals of the forest. On April 1, 1912, a carload of elk was received from the Yellowstone National Park and turned loose in the park at Belton, the western entrance.

From May 2, 1912, to October 1, 1912, 6,257 visitors entered the park.

I concur most emphatically in the recommendation of my predecessor that Congress comply with the request of the State of Montana contained in the act of the State Legislature ceding jurisdiction and formally notify the Governor of Montana that its tender is accepted.

R. H. Chapman,
Acting Superintendent.

EXTRACTS FROM 1912 REPORT OF THE SUPERINTENDENT OF THE MOUNT RAINIER NATIONAL PARK.

During the 1912 season 8,371 visitors entered the park by way of the Government road.

Sixty-two of "The Mountaineers," including packers and helpers, and using 29 pack animals, entered the park near the eastern boundary July 25, 1912, and, after camping at different places, left August 9th over the Carbon River trail, near the northwestern corner. They report that a number of mountain goats were seen and some deer. Several members of this party made the ascent of Mount Rainier on the White Glacier.

The summit of Mount Rainier was reached by only 162 persons, making the total number to reach the summit to date 1,174.

During the 1912 season 674 automobile permits were issued and 869 machines entered the park. The speed limit in the park is 15 miles per hour, and at abrupt curves this is reduced, signs being placed at points along the road indicating the rate of speed allowed. Automobiles may use the Government road in the park during certain hours of the day. The rules and regulations governing their use of the road and admission into the park are rigidly enforced, and the disposition of most owners is to adhere to them without question. No accidents of a serious nature have occurred in the park.

A shelter hut should be constructed of rock at Camp Muir, to be used by persons attempting the ascent of Mount Rainier.

EDW. S. HALL,
Superintendent.

EXTRACTS FROM 1912 REPORT OF THE SUPERINTENDENT OF THE MESA VERDE NATIONAL PARK.

This park is situated in the extreme southwestern portion of Colorado, in Montezuma County.

Mancos River bounds the park on the southeast. The Mesa Verde lies to the west and northwest of the cañon formed by the Mancos River. The Mesa is cut into deep cañons of various dimensions, with many short spurs, forming promontories, capped with a rim rock of colored sandstone and evergreen forest of dense piñon and cedar. The Navajo, Ruin, Moccasin, and Ute Cañons are the principal ones. Ensconced in caves in these stone walls are found the deserted houses of what we know as the cliff dwellers. On top of the promontories are found the ancient pueblos, some of which cover many acres. Within the limits of the park there are some 400 ruins. The highest elevation of the park is 8,574 feet. These figures are taken from the topographic survey made last year.

During the past year 230 have registered at the camp at Spruce Tree House; no heavy traffic can be expected until roads are completed.

S. E. SHOEMAKER,
Superintendent.

EXTRACTS FROM 1912 REPORT OF THE SECRETARY OF THE INTERIOR.

By the act of Congress approved March 1, 1872, establishing the Yellowstone National Park, Congress inaugurated the policy of setting aside land as recreation grounds for all the people. Since that time additional lands in various sections of the country have been set aside for such purposes, as well as for the preservation of the wonders of nature therein from desecration and for the protection of the flora and fauna. These national parks, now aggregating 12 in number, embrace over 4,500,000 acres of land, and there should be speedily added thereto the Grand Cañon of the Colorado River with its wonderful scenic features, for the creation of which as a national park recommendations have been submitted to Congress.

The constantly increasing number of persons, not only from this country but from abroad, who visit these national parks as a means of recreation and to view the wonders therein clearly indicate the great interest taken by the public in these parks. The total number of visitors to all the parks during the past year aggregated approximately 229,084, as against 224,000 in 1911 and 198,506 in 1910. Future travel to these reservations will doubtless be greatly augmented, particularly during the Panama-Pacific International Exposition in 1915.

The economic value of tourist traffic to these reservations is evidenced by the financial reports of concessionaires in two of the largest parks, to-wit: in Yellowstone, where the gross receipts in 1911 aggregated $1,050,039, and in Yosemite, for the same year, where it aggregated approximately $295,500. In my last annual report I called attention to the fact that the superintendents of the various parks were brought together at a conference held under my direction in the Yellowstone National Park in September, 1911, for the purpose of discussing the many difficult problems presented in the administration of affairs of each reservation, with very satisfactory results. In October of the present year a second conference of the various park superintendents was held under my direction in Yosemite National Park, at which there were in attendance the chief clerk and other representatives of this department, representatives of the Department of Agriculture and War, of various transcontinental railroads, and of many concessionaires in the parks, as well as a large number of persons interested in national park matters. Various phases of park administration were discussed, including camp and hotel accommodations, sanitation, transportation, construction of roads, trails and bridges, forestry, fire protection, protection of game, and the use of motor-driven vehicles on the roads, etc. The information acquired as a result of the consideration of the various matters presented will doubtless result in more effective administration in many respects. The consensus of opinion, however, at this conference, as well as of that of 1911, was that the development of the national parks should proceed along more liberal lines than heretofore, and that the supervision of activities therein be centralized in a bureau especially charged with such work, and a measure looking to this end is now pending in Congress.

The laws relating to all the parks, excepting the Yellowstone National Park, should be amended so as to authorize the Secretary of the Interior to grant leases for periods of 20 years or less, with provisions for renewal or for payment for the lessee's appropriate improvements at the end of the lease. The present limitation of 10 years in most of the reservations is not such as to induce capital to make investments in buildings and hotels, etc.

It is of special and urgent importance that provision should also be made by Congress for the extinguishment of private holdings in the several parks. These holdings seriously interfere with the proper administration of the parks and impair their usefulness and beauty in many ways. They can be extinguished either by way of direct appropriation for their purchase, or by authorizing their exchange for lands or timber within the particular parks or within the national forest reserve adjacent thereto. The public timber so exchanged can, in many cases, be confined to dead or matured timber which can be removed from the parks without injuriously affecting the scenic beauty thereof. If authority of this sort is vested in the Secretary of Agriculture and the Secretary of the Interior, as to the reserves of which they have jurisdiction respectively, exchanges of park or forest lands or timber can be made for appropriate strips of private timbered lands along the public roads within the exterior limits of the parks or forest reserves, so as to protect the scenic beauty of these roads from impending destruction.

WALTER L. FISHER,
Secretary.

NATIONAL PARK CONFERENCE (1912).

The second annual conference of national park officials was held in Yosemite Valley, last October 14th to 16th, inclusive. There were in attendance Secretary of the Interior Walter L. Fisher, who presided; Chief Clerk of the Department Clement S. Ucker, and other department officials, the superintendents of the thirteen national parks and twenty-eight monuments, officials of the various divisions of the Geological Survey and of the United States Forest Service, many of the concessionaires of the various parks, representatives of the railroads and of the press, interested citizens and public officials, and representatives of the American Civic Association, the Mazamas, the Mountaineers, and the Sierra Club.

The various problems that confront the national park officials were carefully considered and much light was brought to bear on them from many sides. Much of the time of the conference was occupied in considering the admission of automobiles into the Yosemite National Park in particular, as well as to other parks. Forceful advocates of this were former United States Senator Flint, Congressman Raker, and State Senator Curtin.

The event of the conference was John Muir's account of his first visit to the region, how he met Galen Clark, and how the trip was made to and from the valley, including the stay in it at the expense of about three dollars.

R. B. Marshall, Chief Geographer of the United States, was always ready with his comprehensive knowledge of the parks in their entirety.

R. B. Watrous, of the American Civic Association, discussed the parks from the standpoint of their immense national importance, advocating the proposed National Park Service (Bureau) and all agreed with his presentation of the great need for such a bureau to care for the increasing complexity of details involved in their proper development for the public use.

William E. Colby, representing the Sierra Club, spoke of the Club's lively interest in the Yosemite National Park and outlined the Club's activities in making the wonders of the Sierra known to the people and in guarding them from private aggression.

E. T. Parsons spoke in advocacy of making the park available to the many to whom it is now shut, and to do this by making knapsacking trips at slight expense possible to the thousands whose vacations are limited to a week, and to a moderate outlay.

Most impressive was Secretary Fisher's wonderful grasp and control of the sessions, his getting the truth clearly and definitely, and the elimination of pyrotechnics. All present were convinced of the great value of these gatherings.

Extracts from 1912 Report of the Acting Superintendent of the Yellowstone National Park.

Grand total of travel, season of 1912, 22,970.

It was recommended that in case automobiles and motor cycles are to be granted the use of park roads that the present roads be reconstructed at an estimated cost of approximately $2,265,000, in order to provide a single system of roads for automobiles, motor cycles and vehicles drawn by horses and other animals. As a result, the sum of $77,000 was included in the sundry civil bill, approved August 24, 1912, for widening and improving surface of roads, and for building bridges and culverts, from the belt-line road to the western border; from the Thumb Station to the southern border; and from the Lake Hotel Station to the eastern border, all within Yellowstone National Park, to make such roads suitable and safe for animal-drawn and motor-propelled vehicles. It is understood that this work of widening and improving, which will be commenced under the small appropriation referred to above, is to be extended over several seasons, thus giving the present stage and transportation lines operating in the park an opportunity to prepare for the advent of automobiles.

L. M. Brett,
Lieutenant-Colonel, First Cavalry,
Acting Superintendent.

NATIONAL PARK PUBLICATIONS—DISTRIBUTED BY THE SECRETARY OF THE INTERIOR.

The following publications may be obtained free of charge from the Secretary of the Interior, Washington, D. C.:

List of national park publications. 28 pages. An annotated list of books, governmental publications, and magazine articles on the national parks.

National park pictures collected and exhibited by the Department of the Interior. A descriptive list of pictures exhibited at public libraries by the Department of the Interior. Contains short descriptions quoted from well-known writers.

Proceedings of the National Park Conference held at Yellowstone National Park, September 11 and 12, 1911. 210 pages. Contains a discussion of national park problems by officers of the Government and other persons.

Analyses of the waters of the Hot Springs of Arkansas, by J. K. Haywood, and geological sketch of Hot Springs, Ark., by Walter Harvey Weed. 56 pages.

The following information circulars contain data regarding hotels, camps, and principal points of interest, lists of book and magazine articles, sketch maps, and rules and regulations:

General information regarding Yellowstone National Park. 32 pages.

General information regarding Yosemite National Park. 22 pages.

General information regarding Mount Rainier National Park. 20 pages.

General information regarding Crater Lake National Park. 10 pages.

General information regarding Mesa Verde National Park. 24 pages.

General information regarding Sequoia and General Grant National Parks. 22 pages.

General information regarding the Hot Springs of Arkansas. 8 pages.

General information regarding Glacier National Park. 10 pages.

The following publications issued by the Department of the Interior are *for sale by the Superintendent of Documents, Government Printing Office, Washington, D. C.*, for 10 cents each:

Geological History of the Yellowstone National Park, by Arnold Hague. 24 pages, 10 illustrations.

Geysers, by Walter Harvey Weed. 32 pages, 23 illustrations.

Geological History of Crater Lake, Oregon, by Joseph S. Diller. 32 pages, 28 illustrations.

Some Lakes of Glacier National Park, by M. J. Elrod. 32 pages, 19 illustrations.

Sketch of Yosemite National Park and an Account of the Origin of the Yosemite and Hetch Hetchy Valleys, by F. E. Matthes. 48 pages, 24 illustrations.

Remittances for these publications should be by money order, payable to the Superintendent of Documents, Government Printing Office, Washington, D. C., or in cash. Checks and postage stamps cannot be accepted.

FORESTRY NOTES.

WM. E. COLBY, Editor.
WALTER L. HUBER,
U. S. Forest Service, Assistant Editor.

FOREST FIRES IN CALIFORNIA. A favorable public sentiment against forest fires has grown steadily. It has been shown, however, that the maximum efficiency has been obtained through the efforts of the voluntary fire wardens. It is apparent that the fire situation can be successfully handled only through the maintenance of a paid State patrol, and toward that end an effort will be made to secure the necessary appropriation at the coming Legislature.—*American Forestry.*

FORESTRY AT THE STATE UNIVERSITY. A Forestry Club has been organized at the University of California for the purpose of securing an appropriation from the Legislature for the creation of a forestry department. . . . The field for practical work and observation in California is unsurpassed by other States. Conservative forestry is being conducted on twenty national forests where the students can work during the summer months. Their milling, logging and other practical work can be obtained upon the large holdings of the timber companies within a comparatively short distance of the university campus. . . . Every assistance should be given the members of the Forestry Club in their endeavor to secure an appropriation to establish a department of forestry at the University of California.—*American Forestry.*

MOVING PICTURE OF FOREST FIRE. On October 1st, Mr. J. S. Dawley, general stage director of Thomas A. Edison, Inc., and troupe arrived at North Fork, California, and in co-operation with, and under supervision of, officers of Sierra National Forest, took sixty-five views of forest activities and forest-fire work. These views were combined in a moving picture entitled "A Forest Fire and How It Is Fought." This picture has been recently shown in all the large cities of the United States and Europe. This is the first time that a moving picture, showing in detail the many activities of a forest ranger, and the work in connection with a real forest fire has ever been taken, and because of the action in the picture it has been received very favorably. The cause and effect and methods of fighting a forest fire have been made clear to the thousands of persons who previously have had no conception of this subject. Great credit is due Mr. Redington, forest supervisor, Sierra National Forest, for his enthusiastic co-operation, without which the views could not have been taken.

Forestry in Canada. . . . As one passes from east to west, the habitable zone rapidly widens from a narrow strip on the inhospitable Labrador coast, fifty to a hundred miles north of the St. Lawrence in Quebec, gradually growing through the prairie regions until in British Columbia it stretches one thousand miles, almost to the Arctic Circle. Stunted, almost worthless timber in Labrador, immense forests of medium-sized conifers mixed with hard woods in Quebec, large spruce and great forests of white pine in Ontario, treeless prairies and forests of poplar through Manitoba, Saskatchewan, Alberta, and, finally, the magnificent forests of British Columbia to the Pacific. . . .

. . . The wonderfully advantageous position of Canada from the standpoint of conservation. All lands in Canada, as originally in the United States, belonged to the Crown, and while in the latter, the Government after the War of Independence, in the effort to encourage colonization, parted with them carelessly and recklessly, by wise foresight, Canada acted differently. Here the land is divided into three broad classes farming land, forest, and mining land, over which the Government retains all rights, as well as over water powers, hunting and fishing. An ideal situation were it carefully carried out, and it is, as a general rule. Land fit for settlement is sold on very low terms and easy payments to the settler, who must, however, clear a certain amount of land each year and build a house. Licenses to mine, to cut timber and to hunt and fish are sold to the highest bidder at auction, and so long as he pays his annual rental and complies with the Government regulations, he is left in undisturbed possession and may sell his rights or will them to his children. The Government demands an annual rental of $5.00 per square mile per year, the protection of the forest from fire and a tax of $1.30 per thousand feet, board measure, when the timber is cut. At first the Government protected the forests from fire itself, charging a fire tax, but this protection was so poor, owing to inefficient organization and too much politics, that the licensees petitioned to be allowed to protect their own lands at their own expense, and this request was acceded to. The licensees choose their own rangers, who are commissioned by the Government. This system has worked well, but has been further improved by all the owners of licenses forming an association, which protects the limits. The association is the largest on this continent, representing over 7,000,000 acres of timber lands. Rangers on gasoline speeders patrol the railway lines, following all trains, and crews of two men each, with tent, canoe and camping outfit, patrol the rivers, which are the only highways through the wilderness. One lookout station has been built, and the coming season will see several more finished and a number of miles of telephone lines also. The cost for the season has been a little more than one-quarter of a cent per acre, and it is hoped that a more liberal appropriation can be secured. . . .—*Elwood Wilson, in American Forestry.*

DANGER TO THE NATIONAL FOREST POLICY.

. . . There has been during the past two or three years a steadily growing movement to turn over the national forests to the individual States. . . . Public interests, both of the Nation and of the States require their continued retention and management by the National Government. . . . It must suffice to mention a few cogent reasons for Government ownership:

1. The property is now owned by the Nation, and should be administered from the standpoint of national as well as of local needs.

2. The problem of protection from fire and of timber production on the national forests is one of national scope and can be properly handled only by the Government; its solution is a national duty.

3. The problem on water control is no less a national duty. Nearly all of the national forests lie on headwaters of navigable rivers or interstate streams. . . .

4. Not only are the interests of the individual States and communities now fully protected, but in many ways far more is being done for local communities than would be possible under State ownership. In the long run, as the timber and other resources are brought into use with improving markets, the States will receive from the 25 per cent of the gross receipts now allowed them and the additional 10 per cent appropriated for road improvements a larger amount than would come in from local taxes under private ownership.

5. The States are not as well prepared, financially or otherwise, to handle the national forests as is the Federal Government. If the forests were owned by the States and handled in the real interests of the public, there would be substantially the same system of administration as to-day, at a greater aggregate cost for supervision by a considerable number of independent State staffs of technical men. The financial burden would be far too great for the individual States to assume. The result would be either poor administration and lack of protection, or a sacrifice of the public interests in order to secure revenue to meet the financial needs.

6. The successful application of forestry demands a stable administrative policy for long periods. This can be secured far better under national than under State control.

7. A much higher standard of constructive and technical efficiency is possible under national than under State administration.

8. As largely undeveloped property, the forests need heavy investments of capital for their improvement. Their full productiveness can be secured in no other way. The Government is now investing yearly in the forests a considerable part of the appropriation made for them. Even if the States did not seek to make them sources of immediate revenue, at whatever sacrifice to their future possibilities, they would be reluctant to expend much for their development.

9. The States both lack the civil-service system and standards of the National Government and are exposed to greater danger of being

swayed by private interests. In the hands of spoilsmen, demoralization would quickly succeed the present high standards of the Forest Service, while the intimate relation of the forests to the welfare of greater numbers of individuals would tend to make their administrative control a highly coveted political prize. At the same time the value of their resources would certainly arouse a cupidity which would be exceedingly difficult to control. Scandalous maladministration might easily follow. The Federal Government is better watched, farther removed from local influence, more stable, and better equipped with a non-political system and machinery.

The underlying purpose of the proposed transfer of the national forests to the States is really not to substitute State for Federal control, but rather to substitute individual for public control. Its most earnest advocates are the very interests which wish to secure such control. The object of the whole States Rights movement, as it affects the national forests, is to transfer to private owners for speculative or monopolistic purposes public resources of enormous value. Retention of these resources under public ownership is needed to protect the people from abuses which are every day being demonstrated on lands over which the public has already lost control. The proposition is one which the people as a whole would repudiate in an instant if they understood what is proposed. The only danger lies in the fact that some legislation adverse to the national forest system may be passed when the public as a whole is ignorant that it is planned or does not understand the meaning. Vigilance in the defense of its interests and intelligence in the perception of the true character of masked attacks upon those interests are of fundamental necessity if the public is to protect itself.—*Henry S. Graves, Chief Forester, in American Forestry.*

[NOTE.—See also article by Mr. Graves, entitled "Shall the States Own the Forests?" in the New York *Outlook* for December 28, 1912.]

CHRISTMAS TREES. . . . The Forest Service upholds the Christmas-tree custom, but recognizes at the same time that the indiscriminate cutting of evergreens to supply the holiday trade has produced a bad effect upon many stands of merchantable kinds of trees in different sections of the country. . . .

Germany is conceded to have the highest developed system of forest management of any country, yet its per capita use of Christmas trees is greatest. The cutting of small trees for Christmas is not there considered in the least as a menace to the forest, but, on the contrary, as a means of improving the forest by thinning and as a source of revenue. It is therefore constantly encouraged.

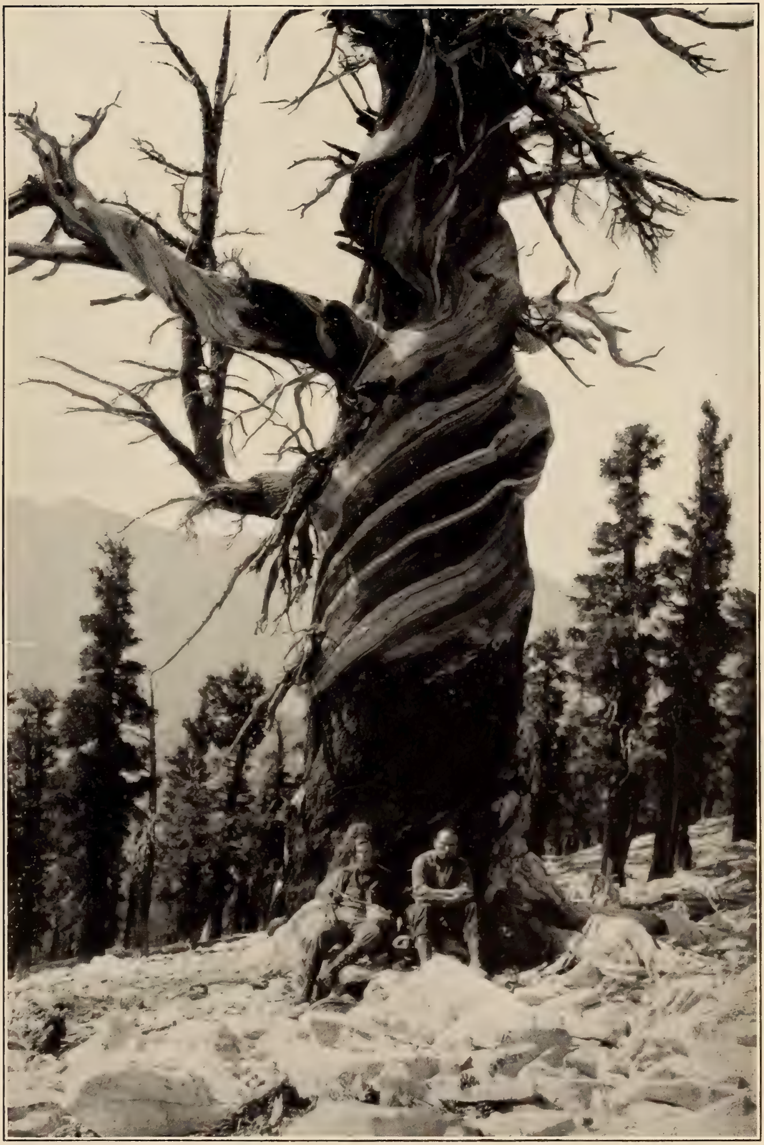
There is little doubt but that the time will come when the Christmas-tree business will become a recognized industry in this country, and that as much attention will be given to it as will be given to the growing of crops of timber for other uses. . . .—*American Forestry.*

MUNICIPAL FORESTRY. . . . Municipal forests are common in Europe. They are common and popular because long ago it was found that by developing waste lands or those of little value in the vicinity of the cities for growing timber, good profits could be made in forest rotations of from thirty to sixty years. In this way material assistance was given in meeting the city budgets, and, consequently, in decreasing the property tax rate. In a few instances municipal forests, under skillful silvicultural management, have yielded a return sufficient to meet all the expenses of the city and in addition have provided a sinking fund for future emergency, or, in some cases a dividend to the stockholders of the city, who, in other words, are the property-owners.

Besides the commercial aspect of these city forests, they have contributed immeasurably to the health and pleasure of the people by furnishing an enjoyable breathing-spot and place for recreation. In addition, European cities are sometimes wholly dependent upon their municipal forests for their fuel and lumber supply. Thus in many ways they enter into the municipal and domestic economy.

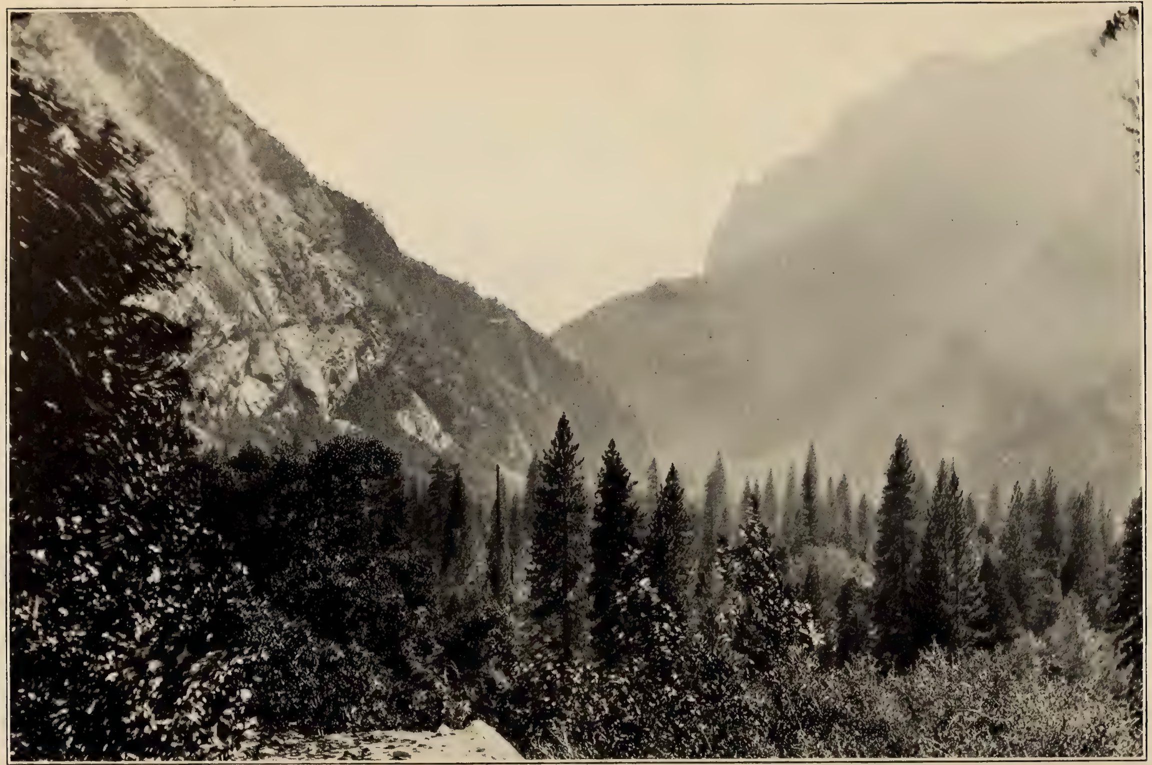
It is only a question of time before American cities will realize the desirability of acquiring waste forest lands within or near their limits that are unfitted for agricultural development or undesirable for building or other more valuable purposes with the view of placing them under scientific forest management. Several municipalities and private water companies have recognized the advisability of developing their forest lands on the drainage basins of reservoirs, both as a source of revenue from the yield of wood products and to maintain the best sanitary conditions. Municipalities and corporations permanent in their nature are better fitted to practice forestry because they can borrow money at such low rates of interest. Forestry is not a business of quick returns.

Consistent with its progressive attitude on many municipal problems, the city of Syracuse has recently taken up the practice of forestry on a tract of timber land on the watershed of Skaneateles Lake, the source of the city's water supply. The forest was purchased primarily to avoid the possibility of contamination. With this object accomplished, it has sought to develop the timber along commercial lines, while still maintaining a continuous forest cover to protect the watershed. A good forest growth is conducive of clear, pure water, whereas a denuded or barren watershed is often responsible for floods and the washing down of silt, with a consequent muddy water supply. With this in view, the city has placed the management of the tract in the hands of the New York State College of Forestry at Syracuse University, to serve not only as a demonstration of the possibilities of practical forestry, but also as a business proposition for the city.—*Nelson C. Brown, in American Forestry.*



AN ANCIENT FOXTAIL PINE, NEAR KERN CAÑON.

Photograph by Chas. W. Michaels.



BEAUTIFUL FORESTED FLOOR OF TEHIPITE VALLEY.

Photograph by Walter L. Huber.

FOREST FIRE PROTECTION IN CALIFORNIA. The average fire season in California is a 153-days drought, during which 655 fires occur on the national forests. The season of 1912 lasted 172 days and 795 fires occurred. So far as these two factors go it was worse than the average by 19 days and 140 fires.

Out of these 795 fires, 176 were serious ones, covering over ten acres and doing over one hundred dollars' worth of damage each; 619 were under ten acres, and 368, or 46 per cent of the total, were under one-quarter of an acre in size and did no damage at all. It is on the last class that the comparative efficiency of the protective organization can be figured from year to year. In 1912 all previous records were beaten by 11 per cent. . . .

Another figure we are keeping close track of for purposes of comparative efficiency is the average acreage per fire. For the preceding four years it has run 296, 225, 653 and 125 acres. In 1912 it was 67 acres. . . .

Three primary causes were responsible for these results. The first was the approaching completion of our communication system, the value of which is accumulative from year to year; the second was the wide extension of the permanent lookout system, and the third the great increase in the number of men on the rolls during the peak of the danger season.

The lookout stations vary from a costly steel tower, with a roofed platform and telescope on top, to a flat rock with an old resident with the country in his head on top. Every one is manned from earliest daylight till dark all summer long and every one is connected by 'phone. Seventy of these lookout stations were in operation last summer, tied in with 900 'phones, on the timbered national forests in California.

A study of the records of several hundred individual fires showed us that the intensity of the danger steadily increased from the middle of July to the middle of September, when, on account of the cool nights, it began to decrease. A fire that one man could handle in June or late September would require six men in August. . . .

One particularly encouraging feature of the year's work is the increased growth of co-operative fire prevention between the Forest Service and timber operators in California. Several formal co-operative cost-sharing agreements were in effect and many more informal protective arrangements were perfected between the lumbermen and the local forest authorities. The formation of the California Forest Protective Association last spring furnishes the means for a still further increase in co-operative forest protection.—*Extracts from address by Mr. Coert Du Bois, District Forester, District No. 5, delivered before the Forest Fire Conference, Seattle, Wash., December 2, 1912.*

BOOK REVIEWS.

Edited by Marion Randall Parsons.

"South America."* One of the strongest impressions left by Mr. Bryce's "South America" is that it must have been written by a man of wide experience, keen perceptions, and unusually open mind. Many a world-famous traveler, devoting only four months to the study of seven widely separated republics, could give as the sum of his experience only a superficial idea of their physical, social or economic aspects. Mr. Bryce's observations, covering these three fields, are never superficial. Throughout the book one feels that an intimate knowledge of the life history of nations is directing and giving value to his impressions. He has the gift, all too rare among travelers or chroniclers, of illuminating historical facts with philosophical significance.

The earlier parts of the book are mostly descriptive. In his introduction Mr. Bryce says: "It is Nature that chiefly engages the traveler's mind in Peru and Bolivia, as it is economic development which interests him in Argentina and Uruguay. In Chile and Brazil he must always be thinking of both. . . . It is only in Peru and Bolivia that any prehistoric monuments exist. . . . I have endeavored to individualize, so to speak, the chief countries of South America, so as to bring out the chief characteristics, natural and human, of each of them. But . . . they have all something in common, something that belongs to South America, as opposed to Europe or North American or Australia. There are also certain general questions affecting the whole of the continent which . . . need to be discussed upon broad and general lines. To these questions the last five chapters of the book have been devoted."

Mountaineers will be particularly interested in the chapters relating to the Andes, more especially as Mr. Bryce has as wide a knowledge of mountain chains as of nations. He finds "nothing in the Andes which better combines beauty with majesty than the Yosemite and its sister cañons in the Sierra Nevada of California." A member of the English Alpine Club, and a member and honorary vice-president of the Sierra Club, Mr. Bryce is in full sympathy with our objects, as these words, applying to the southern Andes, indicate: "The day will come . . . when the townsfolk of a then populous Argentina . . . will find in this wilderness of lake and river and mountain such a place wherein to find rest and recreation in the summer heats, as the North Americans of the Eastern States do in the Appalachian hills, and the North Americans of the West, in the glorious ranges along the Pacific Coast. . . . This lake land of the southern Andes is an addition, the value of which the South Americans have hardly yet realized, to the scenic wealth of our planet."

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* *South America.* Observations and Impressions. By James Bryce. The MacMillan Company, New York. 1912. With maps. 611 pages. Price, $2.50 net.

M. R. P.

"THE WILDERNESS OF THE NORTH PACIFIC COAST ISLANDS."* Among the scores of out-door books published this season, Mr. Sheldon's record of hunting experiences among the North Pacific Coast islands stands particularly high. Mr. Sheldon is not only a hunter, but a naturalist of the type that is interested in the life and habits of wild animals as well as in their skin and bones. A true lover of wild life, the instinct to kill is not his dominant passion, nor the zeal of the collector his only enthusiasm. He does not count the day, nor even the week, lost that does not yield him his coveted prey. Trees, flowers, natives, topography—all receive their share of description and comment. The result is a well-rounded, interesting narrative, full of the charm of the wilderness. Its greatest importance, perhaps, lies in the observations concerning the habits of the great bear of Montague Island, which C. Hart Merriam considers a new species. The well-established belief in the ferocity of these bears is not confirmed by Mr. Sheldon's experience. He relates several occurrences tending to show that oftentimes the supposed "charging" of the wounded, or even the startled bear is rather the result of confusion. An amusing incident is related of an actual collision with a frightened bear hurrying around a hilltop. "I was circling near the top, holding on by the spruces with my right hand . . . when suddenly I saw, about eight feet away, on the curving border of the spruces, . . . a huge bear. I had just time to push forward the butt of my rifle and yell, when the bear collided with me, knocking me down. . . . I had the sensation of one about to be mauled and mutilated. . . . The bear was, I believe, more surprised than I. . . . Swinging about, it ran back over the hill without any attempt to bite or strike me." Very interesting, too, is the chapter on the salmon rivers of Admiralty Islands, describing the run of the salmon and the birds, and beasts that prey upon them. The book is well illustrated with maps, photographs, and drawings by Carl Rungius.

M. R. P.

"THE GUARDIANS OF THE COLUMBIA."† No lowering of the standard set by Mr. Williams' first book is manifest in the present volume. It has three divisions, The River, The Mountains, and The Forests. The first contains a brief sketch of the geology of the region, an account of the principal Indian legends relating to the river and its guardian mountains, and a paragraph on the history of our acquisition of the Columbia River Basin. The concluding part, The Forests, has already been noticed here. The chapter on the mountains will attract widest attention. Besides the valuable information concerning starting-points, routes of ascent and hotel accommodations, a sketch of each mountain is given, covering its history, its glaciers, its most picturesque features, etc. Like its predecessor, however, the glory of the book is its illustrations. Mr. Williams, drawing from many sources, has admirably chosen his collection of pictures so that almost every phase of river, forest and mountain is represented. The book is sure of a wide and enthusiastic welcome. M. R. P.

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* *The Wilderness of the North Pacific Coast Islands.* By CHARLES SHELDON. Chas. Scribner's Sons, New York. 1912. 246 pages. Illustrated with maps, photographs, and drawings by Carl Rungius. Price, $2.00 net.

† *The Guardians of the Columbia.* By JOHN H. WILLIAMS. Published by John H. Williams, Tacoma, Wash. 1912. 142 pages. Illustrated with maps and 210 views. Price: Library Edition, $1.50 net; News-stand Edition, 75 cents net.

"GATES OF THE DOLOMITES." * There are doubtless not a few among us who would have to confess to that ignorance of which Miss Davidson complains—"a strange ignorance of the locality of the Dolomites, even after the fact has been ascertained that they are really mountains, and not people, or, as has been suggested before now, a disease." This book on a rather unfrequented mountain chain is a traveler's guide, rather than a record of mountaineering activities. Though full of excellent material and genuine enthusiasm, and manifesting an intimate knowledge of the country described, one regrets to find it lacking the clearness of style its interest warrants. Fortunately, its value lies in its practical rather than its literary side. A remarkable fund of information concerning roads, trails, inns and means of transportation has been most painstakingly gathered together. Not only the good hotels are indicated, but those best adapted to the needs of various kinds of travelers, classified by Miss Davidson as "motorists," "pass walkers," and "rock climbers." For the benefit of the latter, centers are named whence the more difficult ascents can be made. The bulk of information, however, is gathered for the "pass walkers," pedestrians of average ability, who do not disdain the frequent use of carriage, cart, or diligence to forward them on their way.

Chapters on the flora and the history of the region are contributed by Miss Spencer Brown. To any one planning a visit to this little known part of the Tyrol, Miss Davidson's book would be invaluable. M. R. P.

"SKETCH OF YOSEMITE NATIONAL PARK." † A Government publication of exceptional interest is the "Sketch of Yosemite National Park and Account of the Origin of the Yosemite and Hetch Hetchy Valleys," by Francois E. Matthes of the U. S. Geological Survey. Dealing briefly with the general features of the Sierra Nevada and the Yosemite National Park, the main body of the

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* *Gates of the Dolomites.* By L. MARION DAVIDSON. John Lane Company, London and New York. 1912. Illustrated with a map and photographs by the author and others. 323 pages. Price, $1.50.

† *Sketch of Yosemite National Park and Account of the Origin of the Yosemite and Hetch Hetchy Valleys.* By F. E. MATTHES. Government Printing Office. 1912. Price, 10 cents, postpaid.

sketch is devoted to the two valleys, the effect of glaciation, the influence of rock structure, detail sculpture, domes, etc. Mr. Matthes writes simply, clearly, and convincingly, and the monograph, in its freedom from technical terms, is admirably adapted for a wide circulation among the general public. Copies may be obtained from the Superintendent of Public Documents, Washington, D. C. M. R. P.

"THE MOUNTAINEER."* The list of contributors to the 1912 annual of *The Mountaineer* contains many names well known to the Sierra Club. Greetings from John Muir and Enos Mills introduce the new volume. Francois Matthes writes of the "Undescribed Glaciers of Mount Rainier"; William Frederic Badè of the "Higher Functions of a Mountain Club"; R. L. Glisan describes "Knapsacking in the High Sierra"; and Edmond S. Meany contributes a short article on "Naches Pass" and two poems. The 1912 Mountaineer Outing on the north side of Mount Rainier is chronicled by Mary Paschall, and articles by J. B. Flett, Dora Keen, and others, notes and reports of general interest, and a number of remarkably good illustrations add to the attractiveness of this number. Its editor, Miss Lulie Nettleton, is to be congratulated on having produced so well-balanced and interesting a magazine. *The Mountaineer* is of more than local interest, and stands high among the mountaineering periodicals of America. M. R. P.

"MAZAMA."† The Bulletin of the Mazama Club of Portland, discontinued since 1907, inaugurates its new series by an interesting number devoted to the Three Sisters (1910) and Glacier Peak (1911) outings, the first chronicled by H. H. Riddell, the second by R. L. Glisan. Jane Stearns contributes an interesting article on "The Physiography of the Three Sisters." The unusually fine photographic reproductions make this a most attractive number. M. R. P.

"NATIONAL GEOGRAPHIC MAGAZINE."‡ The June, 1912, issue of the *National Geographic Magazine* is entirely devoted to our western mountains. F. F. Schmeckebier contributes the leading article, "Our National Parks." His presentation of these wonderful properties of the people is most powerful and impressive and is emphasized by the striking photographs that illustrate it. The Three Sisters group in Southern Oregon is the subject of an interesting paper by Ira A. Williams, and A. H. Barnes writes of Mount Rainier. Mazama, Mountaineer, and Sierra Club photographers are splendidly represented in this very attractive number. M. R. P.

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* *The Mountaineer.* Vol. V, 1912. Second Rainier Number, Grand Park and Summerland. Published by The Mountaineers, Seattle, Wash. On sale at the office of the Financial Secretary, John A. Best, Jr., 433 New York Block, Seattle, Wash.

† *Mazama.* A Record of Mountaineering. Vol. IV, No. 1. Published by the Mazamas, Portland, Ore.

‡ *National Geographic Magazine.* June, 1912. Vol. XXIII, No. 6. Price, 25 cents.

"PRACTICAL DRY-FLY FISHING." * Though many works have appeared in England within the past thirty years on the subject of dry-fly fishing, there has been practically no American literature on the subject. A few magazine articles have been written, but Mr. Gill's is the first book to appear. While dry-fly fishing has long been an English "fad," it is but recently that many Americans have become familiar with the essentials of the art. The theory of this mode of fly-fishing is the use of an artificial fly, usually of small size and skillfully made so as to be an exact imitation of a natural insect and so treated with oil and so handled with appropriate tackle that it floats naturally on the surface of the water. The author is of the opinion that American fishing waters justify a modification of the English orthodox ideas,—e. g. in England the dry-fly "purist" sees a trout rise and "stalks" the fish, while in this country the more turbulent waters justify fishing the "stream" when trout are not rising freely. There are many technical phases of the sport discussed, such as the philosophy of the "drag" of the current on the line, and many interesting experiences noted. An appendix describes the proper equipment for the dry-fly angler. Everyone who wishes to keep abreast of the latest developments in the art of trout-fishing should read this practical book. W. E. C.

---

* *Practical Dry-Fly Fishing.* By EMLYN M. GILL. Charles Scribner's Sons. 1912. 216 pages. Price, $1.25 net.

THE MOUNTAINEERS' SEVENTH ANNUAL OUTING IN THE OLYMPICS.

The party will start Aug. 2nd and cross the Olympic Peninsula, climbing Mt. Olympus and then go down the Quinault River in canoes to the ocean. The trip will last three weeks but can be shortened to two. The cost will be about $55. Write "The Mountaineers," Seattle, Wash., for complete prospectus.

SOUTHERN CALIFORNIA SECTION OF THE SIERRA CLUB—NEWS NOTES.

A recent local walk attracted nearly sixty people, who found the snow on Mt. Wilson-Mt. Lowe skyline trail very enjoyable.

The Section has in contemplation the building of an attractive cabin in the Santa Anita Cañon about seven miles from Sierra Madre. A beautiful location has been selected and leased from the U. S. Forest Service. The cabin will be built of stone, with corrugated iron roof and cement floor, and will be about twenty by fifty feet. The plans have been drawn and about half the estimated cost has already been subscribed. Anyone interested in this commendable undertaking can help materially by sending contributions to the Secretary of the Southern California Section, 822 Higgins Building, Los Angeles.

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1913

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WILLIAM FREDERIC BADÈ

JUNE, 1913

Vol. IX　　No. 2

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All communications intended for publication by the SIERRA CLUB, and all correspondence concerning such publication, should be addressed to the Editor, WM. F. BADÈ, Room 402 Mills Building, San Francisco, California.

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Correspondence concerning the distribution and sale of the publications of the Club with reference to advertising rates and space location, and concerning its business generally, should be addressed to the Secretary of the Sierra Club, Room 402 Mills Building, San Francisco, California.

This publication for sale at 402 Mills Building, San Francisco, and at Dawson's Book Shop, 518 South Hill Street, Los Angeles, also at De Witt & Snelling, 9 Telegraph Avenue, Oakland.

Price, 50 cents per copy.

VIEW IN PROPOSED ROCKY MOUNTAIN NATIONAL PARK.

See page 113.

Photograph by H. W. Gleason.

SIERRA CLUB BULLETIN

VOL. IX SAN FRANCISCO, JUNE, 1913 NO. 2

THE MOUNTAINEERS' WINTER OUTING ON MT. RAINIER.

BY LULIE NETTLETON.

Since snow, fluffy, exhilarating, real snow does not come to Seattle, Seattlites must seek the snow. Consequently it has become the annual custom for the Mountaineers to go back into the hills and spend New Year's enjoying winter sports usually confined to colder lands. Particularly elaborate preparations were made for the winter outing of 1912 to Mt. Rainier, for this was the first opportunity the majority of us had ever had of viewing our great mountain at close range in the grasp of winter. The Seattle-Everett party left Seattle in a special car 7:20 A. M., December 28th, and were joined in Tacoma by a delegation from that city.

Midday found us at Ashford anxiously viewing several rather dubious-looking sleighs drawn up at the little station. Since a sleigh ride is an almost unknown quantity on Puget [illegible] we hailed even poor sleds as a luxury. Our start was quite as we had anticipated; the bells were merry, the road white and soft, the woods an exquisite crystal palace, the air like wine,—in short, all the stage-settings were perfect for a sleigh-ride of song and story. There was just one flaw, and that was the sleighs themselves. They proved to be of such delicate construction that we soon resorted to our own feet as more dependable, and walked to Messler's, a distance of five miles. There a hot lunch fortified us for the nine miles that lay between us and the National Park Inn at Longmire's Springs.

The imposing entrance to the Rainier National Park was passed early in the afternoon, appearing doubly impressive with its white cornice of snow. The office of the Park Superintendent, on the contrary, seemed to have lost its summer dignity and peeped at us from its cozy nest of snow, like a Santa Claus house in a shop window.

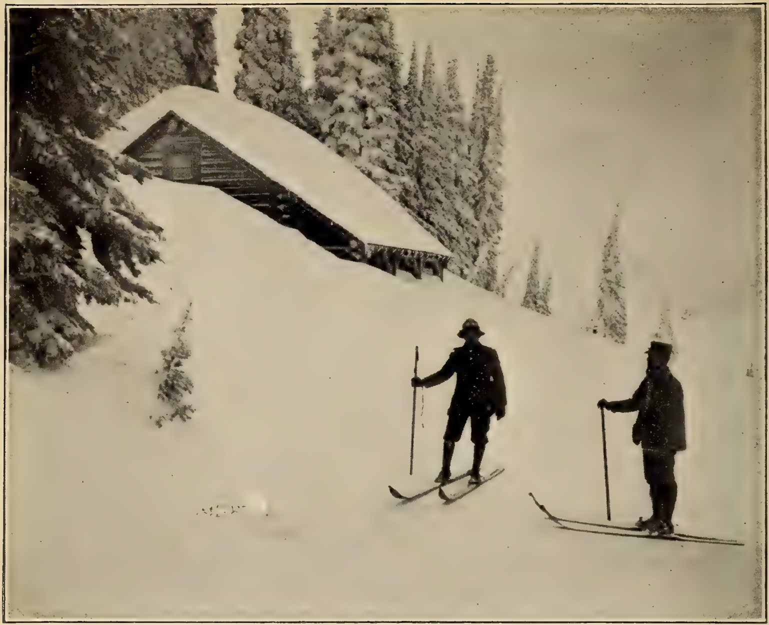
The snow upon the road lay about three feet deep and was very soft, so strong men broke the trail and the rest "came tumbling after." Darkness settled about us and going became doubly difficult. But the ethics of the trail forbade complainings, and we plunged on, making merry over our stumbles. Leaders of the party encouraged their followers with beautiful fairy tales of a warm inn, where dinner awaited us. Never did storm-driven mariners watch more eagerly for a guiding light than we for the glow in the hotel window, and when the dream had materialized in the form of dry attire, a roaring fire, and a hot dinner, the hardships became an amusing memory. Sunday the snow changed to pouring rain and while a few tried out snowshoes, the majority lounged in the hotel or before the huge fire in the clubhouse.

The outfit necessary for this trip was unique to say the least. Since the average resident of this mild climate is not equipped for deep snow, the sudden demand for cold-weather articles had caused a rush upon Alaskan outfitters, and calls upon friends from colder regions. Consequently the equipment was almost international in character—German socks, Swedish stockings, Alaskan mucklucks, Canadian and Alaskan snowshoes, and Norwegian skiis. The equipment was brought into play on Monday, when a grand snowshoeing expedition was planned to Narada Falls. We were nearly all of us novices and embarked upon the snowshoes with some trepidation. The nautical term is used advisedly, for the novice in snowshoeing is liable to capsize, or make shipwreck, or experience any misadventure incident to voyagers on the high seas.

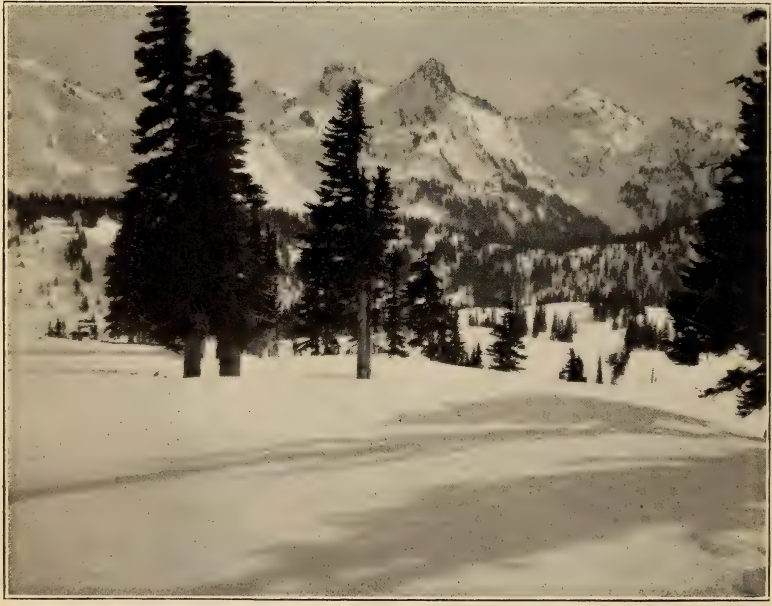
We followed the Government road, then branched off on the Paradise Trail and soon found ourselves in a remote wilderness ruled by the frost giants. We shall always remember the transformation worked by the snow on the vegetation of this perfectly normal Washington forest. Fallen stumps and twisted branches were changed to white monsters, sea-serpents, and shapes of prehistoric creatures, with here and there a white-robed nun to give us confidence. The trail was blind because the snow-drifts came above the blazes on the trees. The Paradise River was no longer the charming mountain stream of summer-time, but a dark, raging cataract, making its way between flawless white walls. Eagle Peak loomed beyond, a pure white crest through the snow-filled atmosphere. Narada Falls, one of

MT. RAINIER NATIONAL PARK. NISQUALLY VALLEY, FROM THE GLACIER.
Photograph by Asahel Curtis.

PARADISE VALLEY, MT. RAINIER NATIONAL PARK. REESE CAMP AND TATOOSH RANGE.
Photograph by Asahel Curtis.



PARADISE VALLEY, MT. RAINIER NATIONAL PARK. FOREST RANGERS' NEW CABIN AT CAMP OF THE CLOUDS, ELEV. 5600 FEET. PROFS. H. B. BENNETT AND LESLIE CURTIS. JAN. 1, 1913.
Photograph by Milner Roberts, University of Washington, Seattle.



PARADISE VALLEY, MT. RAINIER NATIONAL PARK. CAMP OF THE CLOUDS AND TATOOSH RANGE.
Photograph by Asahel Curtis.

the famous points of interest of that region, was reached after a climb of 2,000 feet within a distance of five miles.

Tuesday, December 31st, one party spent a delightful day in exploring the Ramparts, while a second party of six boldly started for Paradise Valley. The day was not propitious. Snow filled the air and a fierce wind beat against us, but we all loved a storm and felt a stern, exhilarating joy in braving the blast that was trying to keep us from gaining our Paradise. Heavily laden trees swayed and creaked dangerously, small branches were torn by the wind, and fell all about us. The icy wind stung our faces and obliterated the trail a moment after we had passed. The road to Paradise was a long one, truly, but by one o'clock we had reached our goal and stood spellbound in an unreal world. The rustic bridges were barely visible above the white, the roof of a ranger's cabin showed above a drift. Paradise Valley is charming as a home of mountain flowers and exquisite verdure, but as we saw it, robed in a mantle of snow a score of feet in depth, it attained a dignity and majesty that will make it stand alone in the gallery of mountain memories.

But dignity and majesty are not conducive to creature comfort and concluding that "that were paradise enow," we traveled back to the inn. We watched the old year "pass over the divide" with a grand vaudeville performance, a session of limericks, music and dancing. At midnight we formed in a circle and, joining hands, sang "Auld Lang Syne" with a will; then, with shouts, welcomed the New Year as it came up the trail. During our stay our mountain had been hidden in clouds; but New Year's morning we rose early to prepare for the journey home, and looking out of our windows, we saw it, a gleaming mass in the dawn—an omen of good for the New Year.

Newly fallen trees along our homeward route told of the fury of the storm that had passed. Arrived in civilization, we learned for the first time, from harrowing press reports, that our whole company had been lost in the wilderness; heard of our hairbreadth escapes from avalanches, and of suggested search parties. But our radiant faces proved beyond a doubt that we were living, breathing devotees at the shrine of Rainier, not frozen offerings to the mountain that was God.

BLUE HILLS.

Blue hills beneath the haze
That broods o'er distant ways,
Whether ye may not hold
Secrets more dear than gold,—
This is the ever new
Puzzle within your blue.

Is't not a softer sun
Whose smiles yon hills have won?
Is't not a sweeter air
That folds the fields so fair?
Is't not a finer rest
That I so fain would test?

The far thing beckons most,
The near becomes the lost.
Not what we have is worth,
But that which has no birth
Or breath within the ken
Of transitory men.

—*Charles Goodrich Whiting.*

BUTTERFLIES OF THE MOUNTAIN SUMMITS.

By Vernon L. Kellogg.

The insects of the high mountains have a particular interest both to special students of insects and to mountaineers. This interest comes not so much from any particular appearance or modifications of body, or extremely unusual habits or modes of development, as from the simple fact of their being where they are. Finding delicate little butterflies clinging to the great rocks of a mountain peak, or fluttering in the brief sun over the rare fragrant beds of dwarf forget-me-nots and buttercups at the oozy edge of a glistening snow-bank above timber-line, has all the thrill of discovering such flutterers far out at sea. Someway the high mountain top seems a foreign place for such frail creatures. And you pity the poor things blown up the mountainside by some untoward wind, or drifted there by their own wayward wandering. But you waste your pity. They are neither compelled expatriates nor foolish inquisitives from softer, safer climes below. They belong here, they find their food and shelter here, they rear their young here, and as butterfly happiness may be imagined to go, are happy here. That is, they live and live as successfully among the rocks and snow-banks of the mountain summit, as their less strenuous fellow species live in the meadows of the lowlands. Like the marmots and the conies, representing the mammals, and the leucostictes, representing the birds, these Erebia and Chionobas species are the high-altitude representatives of the butterflies. They are alpine residents, and snow and icy wind and bleak brown rock are their habitual associates.

It was twenty years ago, when I used to spend my camping and climbing summers in the Front Range of the Colorado Rockies, that some of these summit butterflies first became familiar friends. So that when I had got above timber-line or even to the very top of the peak—and the high points in the Colorado Rockies run from 13,000 to 14,000 feet just as in the California Sierra Nevada—I did not give all my attention to distant scenery, but spent part of it making acquaintance with the lofty summit butterflies. I would unlimber a little butterfly net with jointed handle, and chase about over the rough surface in an atmosphere about one-half as dense as that of sea-level, until I would sink breathless and exhausted on the soft flower-studded turf by the side of a great snow-bank, and then content myself with watching my would-be victims take their dainty sips of nectar and hunt eagerly for the right little plant on which to lay their eggs.

The most successfully elusive flutterers, in this life and death game of hide and seek, were certain small velvety dark brown butterflies which belong to a species, *Erebia magdalena,* limited to Colorado's mountain tops. Whenever I flushed one it always made for the roughest patch of jagged rocks anywhere near, and there it slowly fluttered invitingly over them until after violent and painful scrambling I was ready to strike with my net, when it would dive swiftly down to safety into the dark openings among the uneven stones. I have seen specimens go down into one of the pit-like refuges and then come out ten or a dozen feet away from another opening connected with the first by a dark sinuous way among the rocks.

No Erebias have yet been found in the Sierra Nevada, but it is highly probable, nevertheless, that one or more species occur there. And some Sierra Club member should be first to find them. They cannot be mistaken; small, velvety, dark brown butterflies, expanding about one and a half inches. The species found may have a single small eye-spot with yellowish ring for a margin on either fore or hind wings or even on both. Two or three species occur in Alaska and one in the Yellowstone. They may occur anywhere above timber-line to the summits.

A group of alpine butterflies which is represented in California is the interesting genus *Chionobas,* (or *Oeneis)* of which species occur on Mt. Katahdin in Maine, on the White Mountains of New Hampshire, on the Rockies and on our own Sierra Nevada. This curious and suggestive distribution of these alpine butterflies, appearing as they do on mountain summits from the Atlantic to the Pacific, but wholly absent in the great regions between these mountains, and the further extraordinary fact that the Katahdin, White Mountain and Rocky Mountain representatives of the genus all belong to the same species (showing only certain slight variations which have given them separate sub-species ranking), present to us one of the most important and interesting special biological problems in butterfly life. Nor is it a problem limited to butterfly distribution, but it is one that arises in the consideration of the distribution of any other mountain-top insects or other animals.

The problem has had much attention, and its solution seems to be that most of these mountain peak species are the persisting representatives of almost unmodified descendants of Glacial Epoch forms, the offspring of stranded individuals left on the summits at the time of the retreat of the great ice-fields. The glacial species extended across the continent in glacial times. With the retreat northward of the ice-sheets some animal and plant kinds retreated with it, but others followed the withdrawing local glaciers up the mountain cañons. The ones that went north are to-day Arctic species ranging across the northern part of the continent. The ones that went up the mountains are to-day alpine species existing in little isolated groups on widely separated mountain summits in mid-continent latitudes. Some alpine forms extend north along the summit of a mountain range, as the Rockies or the Sierra Nevada, until they reach Arctic or sub-Arctic conditions and then range across the continent. Altitude equals latitude as regards biological environment, and our little butterflies of the mountain tops in sunny California are really living in and enjoying the Arctic conditions of their glacial time ancestors, and of their far northern cousins of to-day.

There is interesting experimental proof of the fact that the Arctic and alpine forms are the older, and the southern and lowland forms the newer, in a species of butterfly represented in Europe by several different varieties. This proof is that afforded by the work of Fischer, a former student of the University of Zurich. The butterfly in question is the widespread and familiar mourning-cloak, or Camberwell beauty, *Euvanessa antiopa.* It occurs almost everywhere in the north temperate zone, but while it shows little variation in North America, in Europe it exists in a series of distinct, although gradating varieties, each characteristic of a rather narrow latitudinal zone.

The great mountain chains of Europe run east and west (instead of north and south as in North America) and so when the ice-sheets of the Glacial Epoch swept southward hosts of species of plants and animals were crushed out of existence between the ice and the mountain barriers. A few species, more plastic and adaptable than the others, became modified sufficiently rapidly to the Arctic conditions to avoid extinction. From them the present-day fauna and flora of Europe have largely descended.

In the light of this probable evolutionary relationship of the warm weather butterflies of Europe to their cold weather forms, and in the further light of the familiar so-called "biogenetic law" of Hæckel and Fritz Müller which declares that each individual of a species passes in its personal development from egg cell to adult, through a swift and incomplete but suggestively revealing recapitulation of the ancestral development, or evolution, of the species to which it belongs, Fischer made the hypothesis that the southern varieties of the mourning-cloak were the descendants of the northern varieties, or, more precisely, that all the varieties were the successive descendants from the most northern or truly Arctic form, which could be looked on as the persisting Glacial Epoch form itself. If this were true, and the biogenetic law is true, he argued that the reproduction of a glacial time climate during the development of a southern mourning-cloak ought to arrest its development at a glacial time stage, and a northern variety should issue from the chrysalid of a southern individual. As a matter of fact Fischer was able, after some experimenting, to produce at will, by proper refrigeration of the chrysalids of southern (Italian) mourning-cloaks, almost any one of the northern forms even to the most northern or Arctic one itself. Since then other investigators have tried similar and modified experiments with other species, and their results have on the whole clearly substantiated Fischer's hypothesis. It is true that low temperatures tend to produce, whatever the ancestry of the individual, a darkening of color and certain changes in pattern. But this directly environmental effect need not be confused with the effect of an arrest of development at an earlier ancestral stage. For the exact reproduction of the color pattern of a northern form by the refrigeration, during development, of a southern form, is something readily distinguishable from a mere general darkening of color tone.

To return from our digression to the interesting Chionobas butterflies, whose distribution was excuse for it, we find them represented on the peaks of the Sierra Nevada by at least one well-recognized species, *Chionobas ivallda,* with the probability that one or two other species, so far recorded only from the Rocky Mountains, or from the Coast Mountains of British America, will be found in California. Chionobas is larger than Erebia, and is of a wood-brown color, with one or two small blackish eye-spots in the apex of each fore wing. It is, even more strictly than Erebia, a thing of the bare rocks of the mountain's summit. It is rarely seen upon flowers or sipping water from a snow-bank's edge. It alights on the rough rocks, balancing itself in the harsh wind, with many a tipping and righting, but ever clinging fast with delicate legs and tiny claws. Or it settles with curious, hesitant, then suddenly certain manner on the little lee patch of bare soil made by the weathering of some great rock. The wings seem curiously large for the frail body, and there is something in all its appearance that makes it different from lowland butterflies, just as its strange life as hermit on the bleak peaks is so profoundly different from all that we conceive the life of the gregarious, dancing, painted flutterers of the flower-strewn valley meadows to be.

Scudder, who studied *Chionobas semidea* on the top of Mt. Washington, notes his surprise upon discovering that these butterflies, which one would expect, perhaps, to find endowed with powerful flight to resist the fierce blasts that sweep across their summit home, are really unusually weak as flyers. They can offer no resistance to the winds, he says, and if they ascend more than two or three feet above the surface of the ground, or pass the shelter of some projecting ledge of rocks, they are hurled headlong to immense distances until they can again hug the earth. He remarks, with interest, their special devices to escape pursuit. One is, when alarmed, indeed at most times, to fly up and down the slopes, rarely along them, thus rendering pursuit particularly difficult. But it seems hard to accept this explanation of the habit, for the only creatures whose pursuit would thus be rendered unusually difficult are human butterfly chasers, and, surely, there are not enough of them on Mt. Washington, nor have been in ancient times, to lead to the elimination of the along-slope flyers and thus to the establishment, by selection, of the other type. About the only actively pursuing enemies of the Chionobas are the few high-flying birds, and they can fly as well up and down slope as along it.

Chionobas, like Erebia, will drop down into a crevice between rocks to escape when closely pressed. The under sides of the wings are mottled and marbled in dull color tone, and Scudder noted that *semidea* has the habit of tumbling on one side with a sudden fall, as soon as it alights, thus especially exposing the under sides of the wings with their mottled markings next the gray rock mottled with brown and yellow lichens. It is an obvious case of protective resemblance, with a special habit to aid the color pattern to become effective as a concealment.

Another strictly mountain summit California butterfly is *Papilio indra*, one of the swallow-tails. It is one without much tail, and with no very great size or brilliancy of appearance. The wings, which expand only about two and one-half inches, are dark velvet brown with two broken yellow bands across each one. These bands, one very near the margin and one farther in, are made of separate small yellow blotches, those in the marginal series being much smaller and more widely separated than those in the inner series, and the marginal band itself thus much more broken than the sub-marginal one. I have never seen this adventurous swallow-tail alive, although I have looked closely for it on many peaks and especially on the top of Mt. Tallac, reputed to be one of its favorite resorts.

The veteran butterfly collector Wright says that it is at home on sharp rocky peaks of 10,000 to 12,000 feet in height, never coming down the mountainsides lower than 9000 feet. "It is peculiar in its habits as well as in its habitat," he writes, "in that while most Papilios are good feeders, Indra spends its time on those high, bare rocks in sunning itself when the sun shines, and in occasionally starting up energetically to flirt with or to fight some other butterfly, but never wasting any time in feeding on flowers to prolong its life.

"It is the most difficult of all California butterflies to capture, as it frequents the most inaccessible places, and is moreover exceedingly wary. I have spent much valuable time (for on the top of a peak 10,000 feet high, time is always valuable), in watching it to learn if possible the secret of its food plant, but always unsuccessfully. Because it does not feed on flowers, and for other reasons, I believe that the life of the individual butterfly is very short, indeed, say from three to eight days, according to the weather, and that its life as a butterfly is wholly spent in play and in the reproduction of its species."

The genus *Brenthis,* related to the familiar silver-spots or fritillaries (*Argynnis*) is another group of butterflies whose few species are mostly Arctic or alpine. A few of these species occur in California, but none of the strictly summit-inhabiting forms has yet been found here. In the Rocky Mountains two or three peak kinds occur, and it is wholly likely that one or more of these, or some closely allied form, will be found on the Sierra Nevada. These butterflies expand only about one and a half inches, and have a reddish and yellowish-brown ground color on the wings, variegated by many darker spots. They cannot be mistaken for either of the plainer, self-colored genera, *Erebia* and *Chionobas.*

A single species of the familiar group of yellows (*Colias*) is occasionally found on, or at least near, the summits. Its scientific name is *Colias behri,* thus bearing with it the memory of one of California's early and most active butterfly hunters, Dr. Hermann Behr, curator of insects, for many years, in the Academy of Sciences. While most Coliads are bright yellow and of some size, Behri is a tiny little thing of little more than an inch in expanse, and of a curious dusky greenish-yellow, or dusky yellowish-green color, characteristics making it seem something well removed from its warmer-climate larger cousins. And in habit and habitat it is thus removed from most of them. But not from all. In the Rocky Mountains I used to catch a rather small dusky greenish-orange *Colias* known as *meadi,* very high up on the mountain flanks. And several species of *Colias* are strictly Arctic in distribution. All of these cold weather Coliads, alpine and Arctic, have a marked dusky cloudiness over the yellow and orange ground color of the wings, and a curious admixture of greenish in the ground color itself. As a rule, indeed, all high altitude butterflies are darker than their near relations of the lowlands.

When one extends one's attention from the very summit to those still bleak but a little less cruel parts of the mountain, its flanks above timber-line and just below it, meeting with more kinds of butterflies is likely. This becomes certain if one works still a little further down the mountain slopes and comes to the shores of the upper glacial lakes in the great cirques and cañon heads, and to the still lower, but still alpine, upper glacial meadows, those smooth green fairy playgrounds in which grasses have supplanted water, and fragrant flowers grow lush in the short season of summer sun.

Here you will find one or two other yellow and orange Coliads, a few adventurous checker spots, and two or three gossamer-winged, iridescent little "blues," species of *Lycæna*. These tiny dancing blues that flit along the wet edges of the lake, alighting daintily on the mud or rocks for a rest, or on the flowers for a sip of nectar, are among the most attractive of mountain butterflies. But neither they nor the yellows, nor yet the various abundant silver spots, meadow browns, checker spots and skippers that occur in the lower glacial meadows are particularly different in appearance or general habit from their related species of the lowlands. Indeed, some of them are only rather bold, errant individuals belonging to species which belong normally to the lower mountain flanks and foothill valleys.

There is, however, a single group of odd, aberrant butterflies all of whose species occur only in Arctic or mountain regions, and when in mountains usually at altitudes that range from five to nine or ten thousand feet. They never, or rarely, get up to the very summits, but also they never, or but rarely, get down to the real lowlands, at least in California or the Rocky Mountains. These butterflies, of which but few species are known, compose the family Parnassiidæ and are commonly called Parnassians. The family is world-wide in its range, characteristic members of it occurring in the Alps, the Caucasus, the Himalayas and elsewhere in the great mountain groups of the globe.

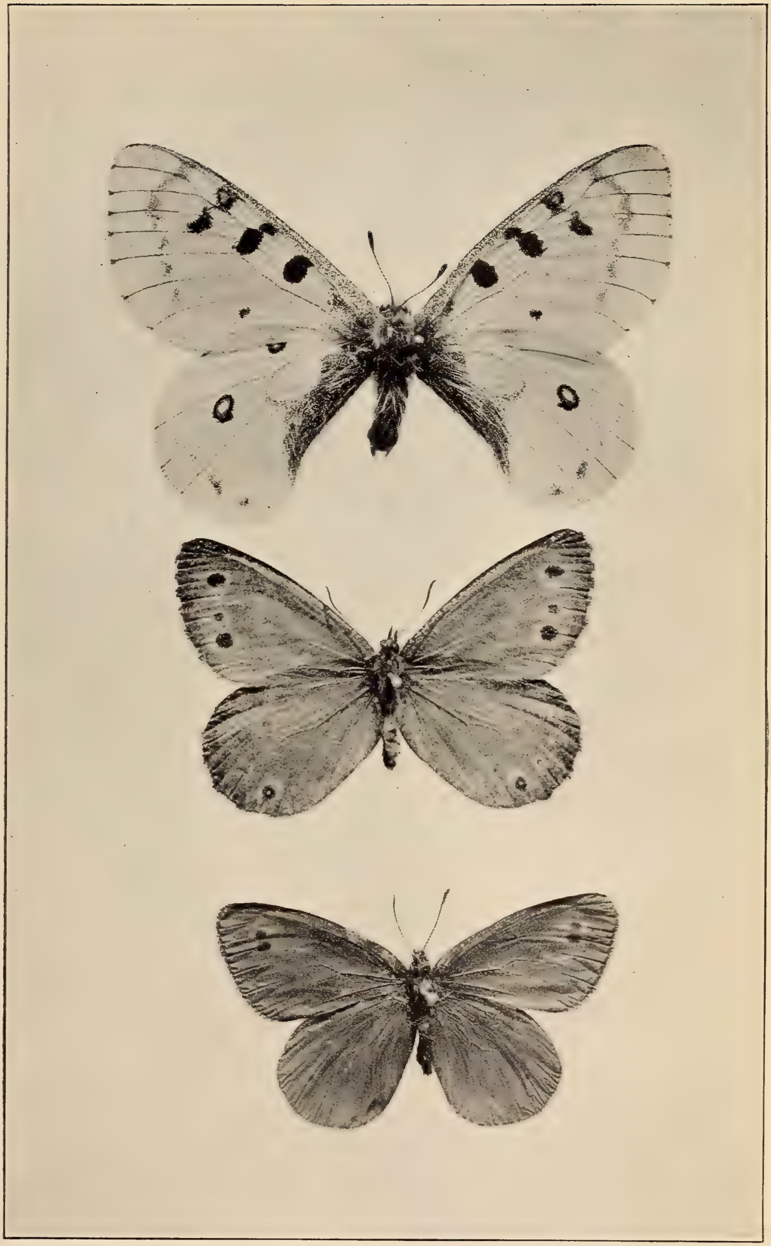
Although there are, as I have just said, but few distinct species—indeed, authorities recognize but two in California—yet each of these species is composed of a number of fairly recognizable varieties or sub-species, so that the careful collector can certainly find at least half a dozen recognizably different forms of California Parnassians. The two admitted species in our fauna are *Parnassius clodius,* whose varieties are found only in the mountains of the Pacific Coast, and *Parnassius smintheus,* whose varieties occur both in the Rocky Mountains and the Sierra Nevada.

All the Parnassians are rather large butterflies, expanding from two and a half to three and a half inches, but showing much variation in size, specimens from the higher altitudes being often much smaller. The wings have a curious, almost translucent, solid white ground color—in one Alaskan species the color is pale lemon-yellow—and the heavy body is clothed with gray and dark hairs. The hind wings bear on both upper and lower sides a few irregularly circular reddish spots, sometimes with a whitish center. One or two of these spots occur also on the fore wings of certain varieties. There are also, especially on the fore wings, a few blackish spots or small blotches, and the inner margin of the hind wings is broadly bordered with blackish. There is usually a faint dark band across the fore wings near the outer margin.

The flight is irregular and jerky, usually rather slow and near the ground. They are easily seen because of their large size and whitish color, and are not difficult to catch. They occur in the Rocky Mountains in considerable numbers at about 8,000 feet altitude, in the characteristic glacial parks of the Front Range. In California they range from much lower altitudes to much higher ones, records of captures at nearly sea-level and at 12,000 feet having been made.

The peculiar faintly smoky translucent appearance of the wings of the Parnassians is due to the fact that the "butterfly dust" or scales which cover the wings and on which all color and pattern of butterflies depends, are not, as in other butterflies, short, flat and broad, and closely and regularly arranged in a complete shingling covering over the wing surfaces, but are narrow, rather sparse, and irregularly arranged, and thus do not form a complete flat color layer on the wings. This curious and wholly unusual character and disposition of the scales in the Parnassians is associated with several other structural aberrances which are hardly of a nature to interest the general reader, but which add to the interest that these strange butterflies have for students of insects.

I should make an end of this paper, and yet I have said nothing about the life of the larvæ, or caterpillars, of the mountain butterflies. There is indeed not much to be said about them, for not much is known. Of *Papilio indra,* for example, the eggs, caterpillars and chrysalids are still wholly unknown. And this is true of some of the others. But of others, still, some little is known of the immature life, and it all agrees in revealing a high tolerance of low temperatures on the part of the caterpillars. There is indeed little doubt that most of them can be frozen and then thawed out with perfect safety. The eggs are laid on dried grasses or on the proper food plant, and the whole immature life is gone through with very swiftly. Just as some mosquitoes of desert regions are able to condense their larval life into one or two days and their pupal life into a few hours, the whole keeping pace with the short existence of a swiftly drying pool formed by one of the rare desert rains, so the butterflies of the mountain-tops have had their life-history adapted to the short alpine summer season. With the oncoming of this season when the sun burns hot and melting, through the thin atmosphere, on the great snow-banks, small grasses and flowers spring up swiftly by the wet edges of the snow and along the tiny rivulets that run away from it. On these low green plants the caterpillars feed voraciously and grow rapidly. The chrysalids are formed, either on the ground or attached to plant stems, nearby, and the issuing butterflies quickly expand their wings, have a few sips of nectar, and a few dancing flights over the rocks and fragrant flower patches, then mate, lay their eggs and die. A week must be a fair old age for most of the summit butterflies; a fortnight is octogenarianism, and any longer is the miracle of Methuselah.



MOUNTAIN BUTTERFLIES.

Parnassius, at top; *Chionobas,* in the middle; *Erebia,* at bottom. (Natural size.)

MT. RAINIER NATIONAL PARK. NARADA FALLS AND EAGLE PEAK.
Photograph by Asahel Curtis.

MT. RAINIER NATIONAL PARK. SNOW-COVERED ROAD TO THE GLACIER.
Photograph by Asahel Curtis.

MT. RAINIER OR MT. TACOMA—WHICH?

By Alexander McAdie.

The following editorial, recently published in a western paper and in character not unlike numerous others appearing in eastern papers, will be read with interest by many and the question naturally asked, Why not make the change?

> Tacoma is a far finer name than Rainier. This is historically and esthetically right, notwithstanding the arbitrary decree of the U. S. Geographic Board, which some fifteen years ago ordered that the mountain should be called Rainier and not Tacoma. Historically, this decree has no reasonable foundation. It (sic) was conferred on the mountain by Vancouver in honor of a British naval officer who happened to be his friend. Why should an American mountain be named after a Britisher who never saw it?
>
> On the other hand, Tacoma is an Indian name, racy of the soil and connected with a most interesting body of aboriginal folk lore. The ruthless, blundering hand of a Washington bureau should not destroy these links with the past.

I hold no brief for the Board of Geographic Names; but it may be assumed that that board in this as in other decisions acted only after investigation and with a full knowledge of the historic facts. It is unnecessary to add that the board was not influenced in its judgment by clamor or any question of advertising value.

The Sierra Club, an organization of nearly two thousand mountain lovers, stands committed to the use of original names when duly authenticated, and in several instances has pleaded for the retention of significant and appropriate Indian or Spanish designations. Wherever possible it prefers the use of original designation.

Some years ago the club was asked to lend support to a movement to substitute the name Tacoma for Rainier. At the request of the Board of Directors, Professor George Davidson then Professor of Geography in the University of California and for thirty years head of the United States Coast Survey on the Pacific Slope, made a thorough investigation of the claims advanced by the proponents for the change. Although his report* is easily accessible and no question or argument has been made as to the fairness and disinterestedness of the investigator, few, if any, of our northern fellow-mountaineers have given the report the recognition it deserves. On the other hand, the press continues to issue misleading and erroneous statements.

Professor Davidson was personally familiar with that section of the country and spent six years' (1852-1857) continuous service in the Puget Sound region. After carefully reviewing all the facts in the controversy, he decided that in conformity with the usage of historians, geographers, and Government records for more than a century, no change should be made. He gives six criteria for determining the proper use of a geographic name:

1. By Governmental decree.
2. The accepted right of a discovery in a new country with uncivilized inhabitants or with no inhabitants.
3. The long usage of geographers, navigators, travelers, and historians.
4. The general opinion of experts in either or all of the preceding sources of authority.
5. The striking peculiarity of the locality or object.
6. The names adopted by any other country for geographic objects.

It appears that under all of these tests the proper name of the mountain is Rainier. It is also shown that Tacoma was not the original name, but an after-thought. There is much uncertainty as to the exact meaning and proper pronunciation of the word Tacoma. The original Indian pronunciation may have been Tahoma, Tagoma, or Tacobet. It is in its essence a tide-water name used by Indians who probably never ascended the mountain. And it may not be out of place to recall that either from superstition, or from fear, or laziness, the noble red man has never been a mountain climber; and that even as a guide for the lower reaches of the mountain, his services were always of doubtful value. The word Tacoma is not particularly appropriate for the mountain. Nisqually or Ohanapecosh would naturally have preference over Tahoma.

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* It may be found in full in the SIERRA CLUB BULLETIN, Vol. 6, No. 2, page 91.

The mountain was named Rainier by Captain George Vancouver in 1792. In an article in the SIERRA CLUB BULLETIN, Vol. 6, No. 1, there is given a measurement of the height of the mountain and the historic facts relating to its discovery. Vancouver named "the round snowy mountain," after his friend Rear-Admiral Rainier. No one had a better right to stand sponsor. The names which he gave to the peaks, bays, channels and islands of that section are all in use to-day. Mount Hood and Mount Baker, after Lord Hood and Admiral Baker; Puget Sound, after his first officer, Peter Puget; the Straits of Georgia and Queen Charlotte Sound, after his King and Queen; Discovery Island, after his ship, and so on through the list. All of these names remain unquestioned.

The advocates of a change insist that Rainier was a naval officer who sank one of our ships during the Revolutionary War. Granted that this be so, does it not add an element of historic interest? They ask, "why should the mountain be named after an English admiral who never saw it?" forgetting that our well loved Mount Vernon gets its name from an English admiral who never saw it. Nor are they well informed when they question Vancouver's right to use names of friends. Every explorer does exactly this and properly so.

Few people on the Pacific Slope are familiar with the work of Vancouver and realize how much we owe him. Professor Davidson, who re-occupied the positions from which Vancouver made his surveys, says that no man ever did better surveying work, considering the dull sailing ships and the surveying instruments then in use. Nor should we forget the eloquent tribute paid him at the time of the Alaska boundary discussion:

> In the conventions of 1822-1825, between Russia and the United States and Russia and Great Britain, the only charts available for that long diplomatic controversy were those of Vancouver; by the decisions of those conventions Russia held all the Archipelago Alexander; and in 1867 the United States purchased from Russia the territory of Alaska, won by Vancouver's silent but unanswerable testimony.

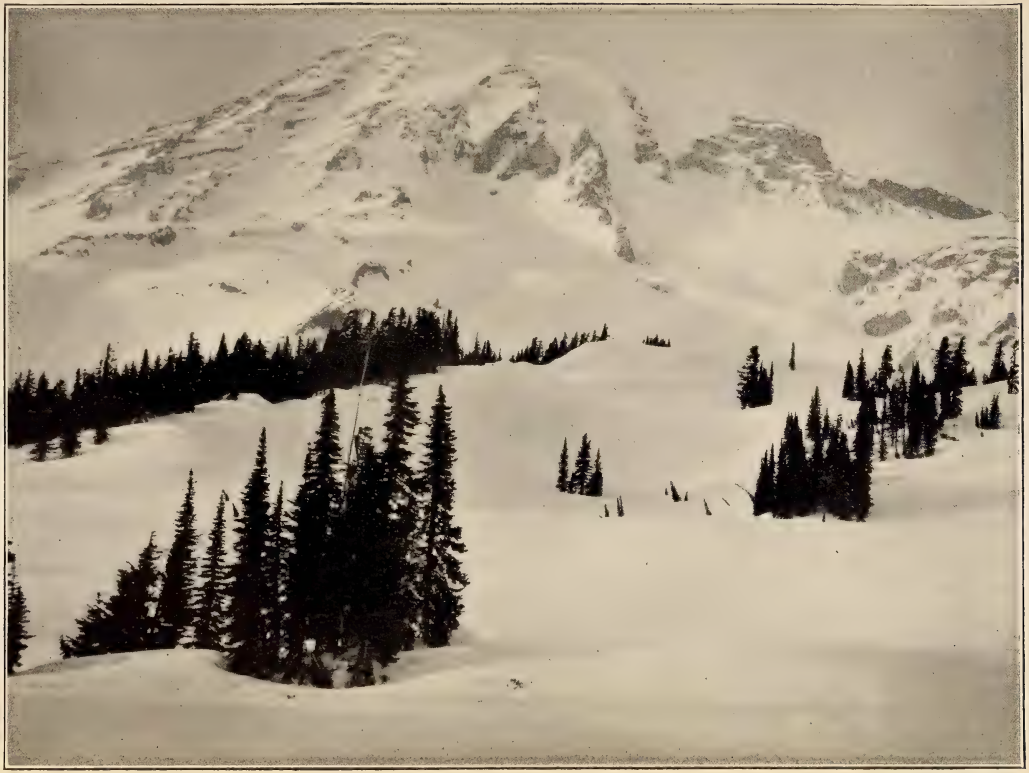
As to the exact height of the mountain, continued misstatement has been made in various publications of a popular*

***Scribners* and *Colliers* may be instanced as offenders. The height of the mountain is given as 14,800 and the statement added, "the highest mountain in the United States proper. It is also called Mount Tacoma."

character. In July, 1905, the writer, with the help of Professor J. N. Le Conte and various members of the Sierra Club, measured the mountain, using the same methods, same instruments and same men used in measuring the height of Mount Whitney and Mount Shasta in California. The result of the measurement, duly published in an official publication and duly ignored by those writing for popular publications, was 14,394 feet. The exact height within limits of a foot cannot be determined until a line of precise levels can be run, and this will be always difficult owing to the large snow area. A re-determination of the height, by the United States Geological Survey, 1912, is 14,363 feet. The true height probably lies between the two values given.

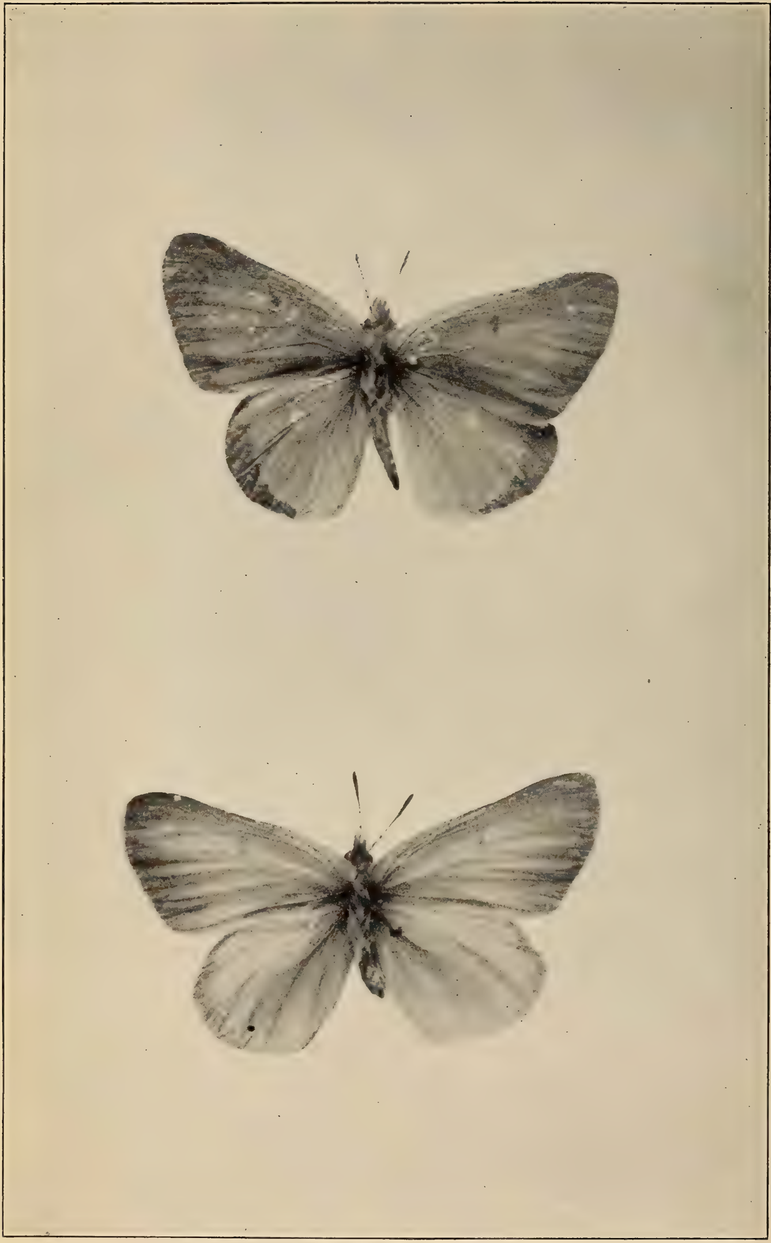
It is plain, then, that the mountain is not the highest in the United States, exclusive of Alaska. So far as known this honor belongs to Mount Whitney, in California, height 14,502 feet.

Rainier is, however, one of the most beautiful mountains in our country and undoubtedly at one time was fully five hundred feet higher than it now is.



MT. RAINIER IN WINTER. THE OLD SIERRA CLUB CAMP OF 1905 WAS IN GROVE ON THE LEFT.

Photograph by Asahel Curtis.



BEHR'S ALPINE SULPHUR.

Upper, male; lower, female. Considerably enlarged.

A BUTTERFLY OF THE HIGH SIERRA NEVADA—BEHR'S ALPINE SULPHUR.

By Fordyce Grinnell, Jr.

The subject of this sketch, which is known to naturalists under the name of *Colias* (*Eurymus*) *behrii,* and which might be called by the common name Behr's Alpine Sulphur, is of interest to Californians from at least three points of view, viz: it was first collected by members of the historic State Geological Survey under J. D. Whitney, some time before 1866; secondly, it was named in honor of one of the greatest of the pioneer naturalists of California, Hans Hermann Behr, who came to California in 1851, where he resided until his death in 1904; thirdly, it is one of the few butterflies in North America which is restricted to an altitude of 10,000 feet and above; and is a recent survival from the ice-cap.

This butterfly was described by W. H. Edwards in 1866 in the *Proceedings* of the Entomological Society of Philadelphia, "from two males and one female, received from Dr. Behr, and taken among the Yo Semite Mountains at an elevation of about 10,000 feet above the sea." It was again described and beautifully figured by Mary Peart in Edwards' "Butterflies of North America," Vol. I. Henry Edwards, in reviewing the group of butterflies to which Behr's Sulphur belongs, says of it: "This very characteristic and distinct species, which has been rightly named in honor of Dr. Behr, the pioneer of California entomology, is found only about the rim of the great Yosemite basin, and usually at an altitude of from 8,000 to 12,000 feet. In these unfrequented spots it flies sparingly, and is, of course, difficult to capture, from the rugged nature of its haunts. It seems chiefly to settle on the flowers of a species of *Eriogonum.* Nothing is known of its early stages, and at present it is remarkably rare in collections."

The male of Behr's Alpine Sulphur has a wing expanse of about one and a half inches. The upper side of the fore wings is of a dark greenish-yellow, sprinkled with black scales; a broad, black border with a narrow yellow fringe on both wings, and a black spot toward the upper central part of the wing, with a yellow streak within. The hind wings have a yellow spot corresponding in position to the black spot of the fore wings; the black marginal border is less extended, but clear cut. The under sides of both wings are of a much paler greenish-yellow, specked with small black scales; the discal spots are more vague than on the upper side. The upper edges of the wings are rose-colored as well as the antennæ, which are furnished with a black club. The female is a little larger than the male, of a paler green, and the marginal black border is less distinct and fading gradually into the ground color of the rest of the wing; the fringes are more or less roseate in contrast to those of the male, which are yellow. This butterfly is most nearly related to the Arctic Sulphur (*Colias nastes,* Boisduval), which is found in Labrador, Greenland, Arctic America, and said to be found on the mountains of British Columbia and some varieties which are found in Lapland, Nova Zembla, and the Swiss mountains. It differs from Behr's Sulphur in that the marginal border is broken up into spots and the discal spots indistinct and greenish-white instead of clear yellow; it is larger and much paler in color. So it can be seen that our butterfly of the High Sierras is a descendant of the ice-cap species, which once extended continuously to the Arctic regions, but now survives only at especially favorable locations of our mountains.

The localities, besides those mentioned above, where this butterfly has been taken are: Dr. E. C. Van Dyke of San Francisco found it in 1892 on the side of Mt. Lyell and in the Tuolumne Meadows and on the peaks surrounding these meadows, but did not find it common. Again, in July 1910, Dr. Van Dyke collected it in Bubbs Creek Cañon, Kings River, at an altitude of 10,500 feet, where he found it common, and flying along the meadow-like margins of the alpine streams and lakes; an alpine lupine which was quite abundant he concluded to be its food plant. The late Mr. J. B. Lembert, who lived for so long in the Tuolumne Meadows and of whom an account is given in the January number of the BULLETIN, collected this butterfly in large numbers in the above-named place. He studied the life history pretty completely, from the egg to the adult butterfly, and sent alcoholic specimens to Dr. H. G. Dyar, who described them minutely in the *Canadian Entomologist* for 1893. The eggs are deposited singly on the upper sides of the leaves of a species of ground huckleberry, its food plant. The egg is spindle-shaped, with low longitudinal and transverse ridges which divide the surface into shallow, rectangular parallelograms; it measures 1.3 x .6 millimeters. The last stage of the caterpillar (there are five) has a pinkish-white dorsal line, very narrowly black-bordered, running the whole length of the body. The ground color is probably some shade of green in living specimens; with two or three other lines on the body parallel with the first mentioned. The chrysalis appeared to have been yellowish-green, with a lateral pale line on the abdomen.

The specimens of the butterfly collected by the State Geological Survey I saw in Dr. Behr's collection in the museum of the California Academy of Sciences of San Francisco in 1902; these were destroyed in the fire of 1906. Edwards' types, from Dr. Behr, also collected by the Survey, are in the Carnegie Museum, Pittsburg, Pennsylvania. Dr. Strecker also received specimens from Dr. Behr; his collection is in the Field Museum of Natural History, Chicago.

I hope this account of an extremely interesting butterfly will arouse the curiosity of a few Sierra Club members sufficiently so that they will be led to look for this butterfly during the coming summer trip, and add to our really meager knowledge of the habits and distribution of Behr's Sulphur, which has survived the changes of climate and its harsh environment ever since the glacial epoch; isolated from its relatives in Labrador and Arctic America and Europe for a long enough time to enable it to assume an entirely distinct appearance.

"I am a part of all that I have met."

[If there are any members of the Club who would like to know how to capture and preserve butterflies, so that they can add to our knowledge of this species, the writer would be glad to give the needed information if they will write to him at Pasadena.]

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SIERRA CLUB BULLETIN.

PUBLISHED JANUARY AND JUNE OF EACH YEAR.

Published for Members. Annual Dues, $3.00.

The purposes of the Club are:—"To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada Mountains."

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EDITORIALS.

STOCKMEN AND YOSEMITE NATIONAL PARK. Last April application was made to the Secretary of the Interior by two California Livestock Associations for the temporary opening of Yosemite National Park to stock grazing on account of the existing drought in Southern and Central California. The Sierra Club and other organizations and individuals immediately entered strong protest against any such movement, and various communications relating to it will be found among the notes and correspondence. The Secretary denied the application on the ground that "under existing law the Secretary of the Interior has no authority to grant grazing leases or permits in the Yosemite National Park."

Much as one may sympathize with the troubles of stockmen in a dry season, it would be nothing less than a calamity to return to the old conditions when it was doubtful whether the park was administered primarily for the benefit and enjoyment of the people, or for the benefit of those who desired to use and ruin the people's playgrounds for private gain. In the Rainier National Park campers and tourists are not even allowed to pick flowers or destroy vegetation. What could be the meaning of such a provision if the Secretary were to permit wholesale destruction of the undergrowth and floral covering of the park by cattle and sheep?

A QUESTIONABLE EXPERIMENT. On account of the drought conditions complained of in the above application, the Secretary of Agriculture, as an emergency measure, has permitted cattle and sheep men access to certain high Sierra ranges included in national forests that are ordinarily closed to stock. Certainly as far as sheep are concerned we shall watch the experiment with a great deal of apprehension. No animal is quite so destructive of the purposes for which forest reservations are established. It was largely owing to efforts of the Sierra Club that sheep have been excluded from the Sierra for many years past. It is proposed to care for flocks numbering about forty thousand head. The amount of damage these will be able to inflict upon the reproductive growth of the affected ranges may easily prove greater than the value of the sheep. If this turns out to be the case, there will be little solace in the knowledge that the profit is private and the loss is national. In a State like California it is unfortunately too easy to claim necessity for the continuance or repetition of such a precedent.

National Wild Life Conservation. In the history of this country no single year has seen so much accomplished in the form of legislation to protect and conserve what remains to us of our wild life resources. The most notable achievement is the passage, by the last Congress, of the McLean bill, which authorizes the National Government, through the Department of Agriculture, to take full charge of the safety of our migratory wild birds, from ducks and geese down to the tiniest insect eaters, the warblers and humming birds. It will now be possible for the strong arm of the Federal Government to prevent the appalling slaughter of song birds for food which has been such a disgraceful annual feature of certain kinds of hunting in some of the Southern States.

Another great step forward is contemplated in the new tariff bill of the present Congress. One of its clauses provides for the total suppression of all importations of wild birds' plumage (except ostrich plumes) for millinery purposes. This measure has called forth strong advocacy all over the country, and we hope that no emasculating amendments of any kind will be permitted. The so-called "feather trade," of course, is fighting the measure frantically.

Results of the California Campaign. In California most gratifying results have attended the campaign for better legislation conducted by the California Associated Societies for the Conservation of Wild Life. The following are some of the results: Civil service for fish and game wardens; shipments of protected wild game prohibited, together with the sale of wild ducks (except during November); provision for the propagation of wild game in captivity; bag limit on ducks and quail fifteen a day, and thirty a week; possession of plumage of wild birds for any purpose prohibited; aliens prohibited from hunting and bearing firearms. The rallidæ, limicolæ, band-tailed pigeon, wood duck, ibis, and sea otter are afforded absolute protection. As soon as the Governor affixes his signature to these measures California will have taken a long step toward the preservation of her splendid wild life resources.

Director McAdie Leaves the Coast. Members of the Sierra Club will be interested to learn that Director Alexander G. McAdie has accepted the Professorship of Meteorology at Harvard, and the Directorship of the Meteorological Observatory at Blue Hill, Mass., where so much work in exploring the upper air has been done in the past few years. While we deeply regret his going, the best wishes of the Club follow him into his new field of labor.

REPORTS.

REPORT OF THE SECRETARY.

May 4, 1912, to May 3, 1913.

The Sierra Club has just completed a year of healthy growth. The total membership is now 1590, making a net increase of 62 members for the year. The total number of new members added during the year was 249, which is the largest number for one year in the history of the Club. The reason the net increase was not greater was because a large number were dropped from the list who were in arrears for dues and who had previously been carried on the list from year to year. The financial showing, as indicated by the Treasurer's report, is very satisfactory, especially in view of the fact that $500 was appropriated out of the Club treasury to purchase for the Club shares in the Tuolumne Meadows or Soda Springs property. The Club will shortly own very nearly a $2,000 interest in the property as a result of gifts of shares from subscribers and purchases of other shares. Other subscribers who are financially able to do so have signified their intention of giving or leaving their shares by will to the Club. As soon as the Club shall have acquired this property it will doubtless take steps to erect on it a permanent Club lodge. Anyone familiar with the situation of this property will appreciate the great advantage which would result from having headquarters in such a central place from which the many surrounding lakes, peaks, waterfalls and cañons can be easily reached.

The Directors of the Club have just made a vigorous protest against allowing cattle and sheep to enter the Yosemite National Park. The unusually dry season was being used as an argument for this destructive invasion. We are glad to note that Secretary of the Interior Lane has decided that under the law this cannot be permitted.

The Local Walks taken in the vicinity of both San Francisco and Los Angeles are becoming more popular and better attended each year. The Southern California Section is constructing a beautiful lodge in Santa Anita Cañon, to be the objective point for many week-end and Sunday tramps.

The 1913 Outing party to Kings River Cañon and Tehipite Valley has long since been complete. It is a matter of great regret that we have not been able to accommodate all who apply. A lodge in Tuolumne Meadows would aid in the solution of this problem for many members who wish to make mountain trips.

Very respectfully,
Wm. E. Colby, *Secretary.*

REPORT OF THE TREASURER.

May 4, 1912, to May 3, 1913.

To the Board of Directors of the Sierra Club:

Gentlemen: I beg to submit the following report on the finances of the Sierra Club for the year ending May 3, 1913:—

GENERAL FUND.

Receipts.

Cash on hand May 4, 1912		$2,684.39
Cash received from the Secretary:		
Dues	$4,221.50	
Advertisements	930.00	
Rent of Club Rooms	180.00	
Sale of BULLETINS and maps	12.85	
Sale of Club Pins	24.00	
Interest on savings deposits	39.90	
Total receipts		5,408.25
		$8,092.64

Expenditures.

Publications:		
Sierra Club BULLETINS Nos. 47 and 48, 4000 copies each:		
Printing and binding complete	$1,497.25	
Postage	253.94	
Advertising expenses	235.00	
Envelopes	39.25	
	$2,025.44	
APPALACHIA, April, 1912:		
Postage	$ 102.00	
Envelopes	21.00	
Express	8.50	
	$ 131.50	
Total		$2,156.94
Rent:		
Rent of Rooms 402 and 403, Mills Building	$ 645.00	
Rent of telephone (Kearny 2449)	72.95	$ 717.95
Service:		
Salary of Assistant Secretary	$ 690.00	
Additional help	2.50	$ 692.50
Postage for general correspondence		$ 323.73
Carried forward		$3,891.12

Brought forward		$3,891.12
Soda Springs property:		
Cash voted by Directors for purchase of shares	$ 500.00	
Cost of circulars, recording deed, taxes, etc.	29.95	$ 529.95
Cash voted by Directors to Southern California Section		$ 150.00
Le Conte Memorial Lodge in Yosemite:		
Salary of Custodian	$ 105.00	
Sundry small expenses	22.15	$ 127.15
Club Room expenses		$ 71.62
Library		77.71
Stationery		94.75
Local Walks		61.75
Circulars		33.35
Expenses on account of National Parks		83.25
Purchase of Club Pins		19.75
Wild Cat Cañon Reunion		15.00
Election expenses, ballots, etc.		14.50
Contribution to Bird Preservation Society		10.00
Miscellaneous telegrams		7.90
Exchange		4.61
Taxes		2.83
Sundries		13.85
Total Expenditures		$5,209.09
Cash on hand May 3, 1913:		
On deposit, First National Bank	$1,967.52	
In Security Savings Bank	553.14	
In Savings Union Bank and Trust Co.	355.34	
In the Secretary's drawer (cash)	7.55	2,883.55
Total		$8,092.64

PERMANENT FUND.

On deposit in Security Savings Bank, May 4, 1912	$1,026.75
Interest accumulated during year	39.78
New Life Memberships during year	100.00
Total on deposit in Security Savings Bank, May 3, 1913	$1,166.53

EDW. WHYMPER FUND.

Amount of bequest deposited in Savings Union Bank and Trust Company, August 23, 1912	$ 218.93
Interest accumulated	2.35
Total now on deposit	$ 221.28

Respectfully submitted,

J. N. Le Conte, *Treasurer.*

NOTES AND CORRESPONDENCE.

In addition to longer articles suitable for the body of the magazine, the editor would be glad to receive brief memoranda of noteworthy trips or explorations, together with brief comments and suggestions on any topics of general interest to the Club. Descriptive or narrative articles, or notes concerning the animals, birds, fish, forests, trails, geology, botany, etc., of the mountains, will be acceptable.

The office of the Sierra Club is Room 402 Mills Building, San Francisco, where all Club members are welcome, and where all the maps, photographs, and other records of the Club are kept.

The Club would like to secure additional copies of those numbers of the SIERRA CLUB BULLETIN *which are noted in the list in this number as being out of print, and we hope any member having extra copies will send them to the Secretary.*

A LETTER FROM JAMES BRYCE.

May 3, 1913.

DEAR MR. COLBY:

Thank you for your kind words of greeting. It would have been a great pleasure to meet you and your friends here had that been possible. We are off this morning for China and Japan.

All best wishes for the Sierra Club and its members and its efforts to save Nature. Please greet John Muir cordially for me.

Very sincerely yours,

JAMES BRYCE.

[EDITOR'S NOTE: The above came in response to an invitation to meet the members of the Sierra Club at a reception.]

OUR RECORDS ON ORIZABA.

MEXICO CITY, April 28, 1913.

Gentlemen:

I take pleasure in advising that on the 18th of last month I, in company with the following gentlemen, ascended the peak of Orizaba: Mr. Hiram W. Hixon, of Philadelphia; Mr. Hugo Brehme, of Mexico City; Mr. Carl Jacobsen, of Mexico City.

The box containing the Record of the Sierra Club was found in perfect condition. Our trip was a most successful one.

Yours very truly,

A. MELGAREJO,

Apartado 504, Mexico, Mex.

To the Sierra Club,
San Francisco, Cal., U. S. A.

THE CAÑON OF THE MIDDLE FORK OF THE FEATHER RIVER.

There has recently appeared in the San Francisco papers several notices of the discovery of an impassable cañon and wonderful waterfalls in Butte County, California. The basin referred to lies north of Mooretown and the cañon of the Middle Feather is here Yosemite-like and nearly impassable. There is also a picturesque water-fall on Fall River, a branch of the Middle Feather. This fall is probably over 400 feet in height and is well worth a visit by all lovers of natural scenery. The cañon of the Middle Feather for some miles above Fall River is extremely rugged, reaching a depth of 3,000 feet, but can hardly be said to be impassable throughout, as it is crossed by trails at two points. An engineer of the Western Pacific Railway lost his life in exploring the cañon some years ago, when this route was under consideration for the railway.

There is, however, nothing new about the district. It has been well known to the residents of the region for probably fifty years, and a picture of the Fall River falls was published in the Bidwell Bar folio of the United States Geological Survey about 1898.

H. W. TURNER.

SAN FRANCISCO, March 28, 1913.

CALIFORNIA BOTANICAL CLUB.

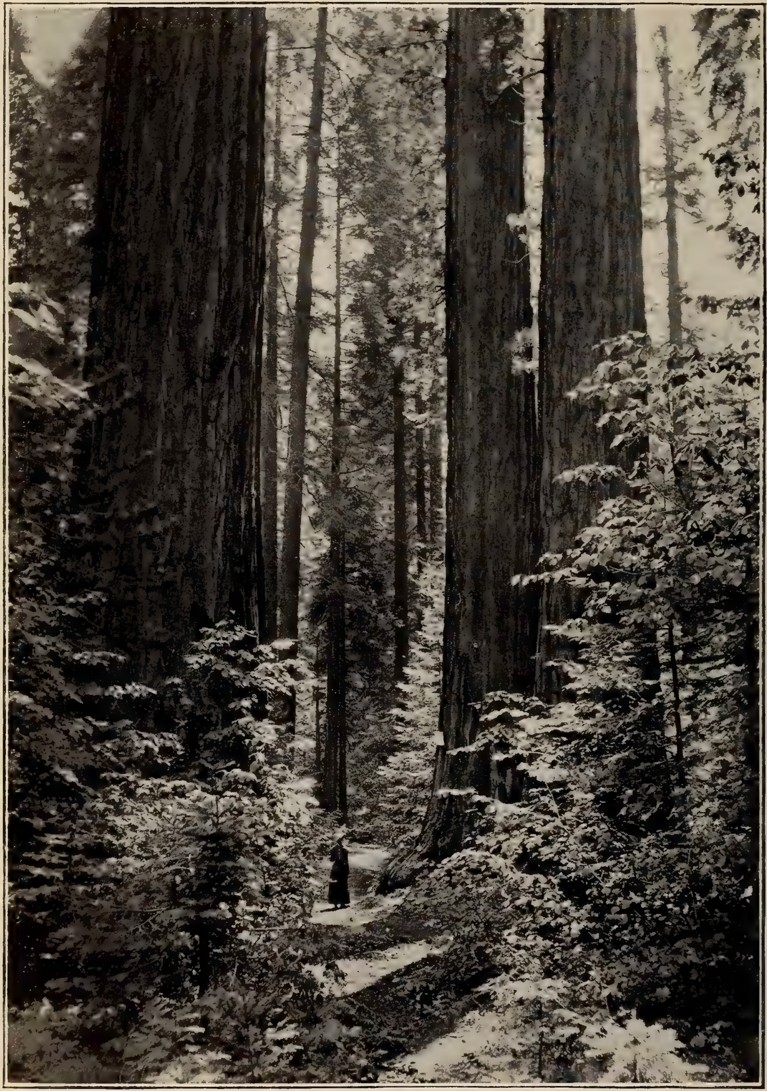
On Saturday afternoon, April 12th, some twenty persons interested in various phases of plant life gathered at the call of Dr. W. L. Jepson, in the meeting room of the Oakland Public Museum for the purpose of considering the formation of a botanical society. A preliminary organization was effected and a general organization meeting held in the same place on the evening of April 26th. Within a month following its organization the society has enrolled 120 members and gives promise of becoming a useful and permanent organization.

It is the object of the society to promote and encourage study of the native and cultivated flowers, trees, shrubs, ferns, fungi, mosses and other plants of California; to hold evening meetings for lectures and discussions, and day meetings for field excursions; to take part in the movement for the preservation of the wild flowers; to hold exhibitions of plants; to publish an illustrated journal of its proceedings and to carry on other activities within the province of a botanical society.

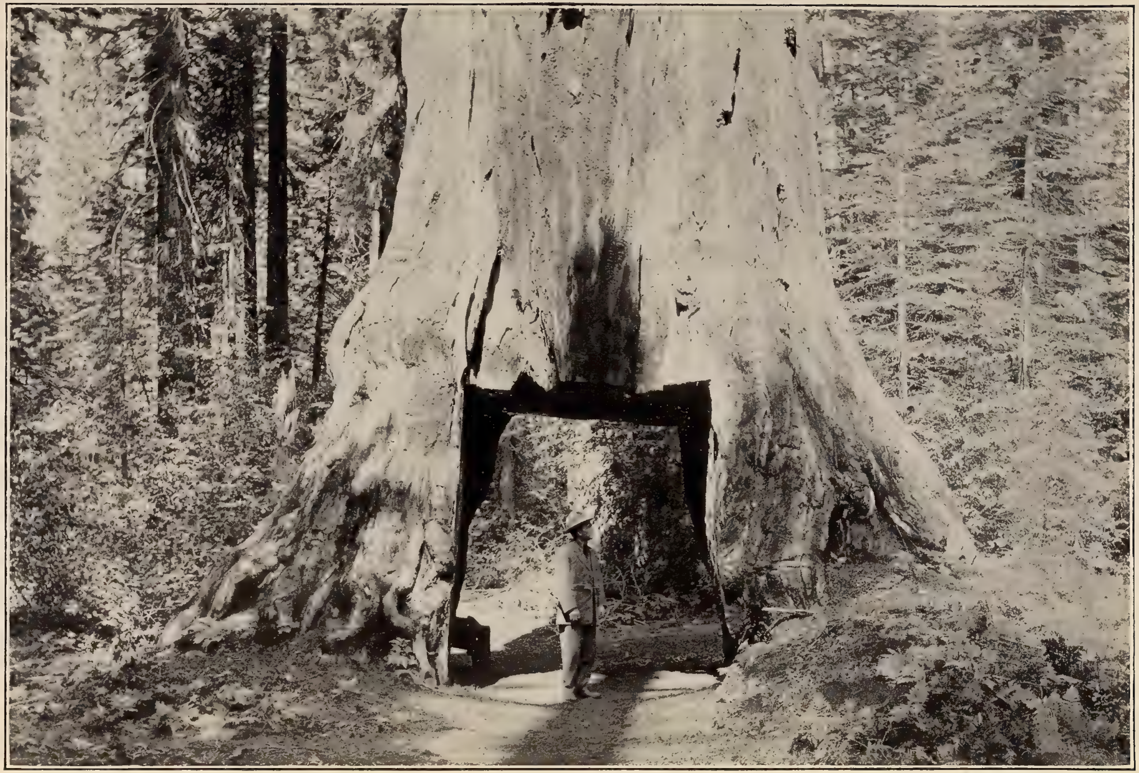
It may confidently be expected that this new society will be a valuable ally to the Sierra Club and other similar organizations in their work of general welfare, the preservation of scenery, protection of natural parks, and the saving from destruction of historic trees or landmarks.

The officers of the society are: President, Dr. W. L. Jepson; first vice-president, Mr. Guy Smith; second vice-president, Dr. W. F. Badé; corresponding secretary, Miss Rowena Beans; secretary-treasurer, Mrs. B. W. De Veer, 1426 Oak St., Oakland, California. Inquiries regarding membership should be addressed to the secretary-treasurer. The dues are one dollar per year.

FALL RIVER FALLS, BUTTE COUNTY, CALIFORNIA. THE CAÑON OF THE MIDDLE FORK OF THE FEATHER RIVER.

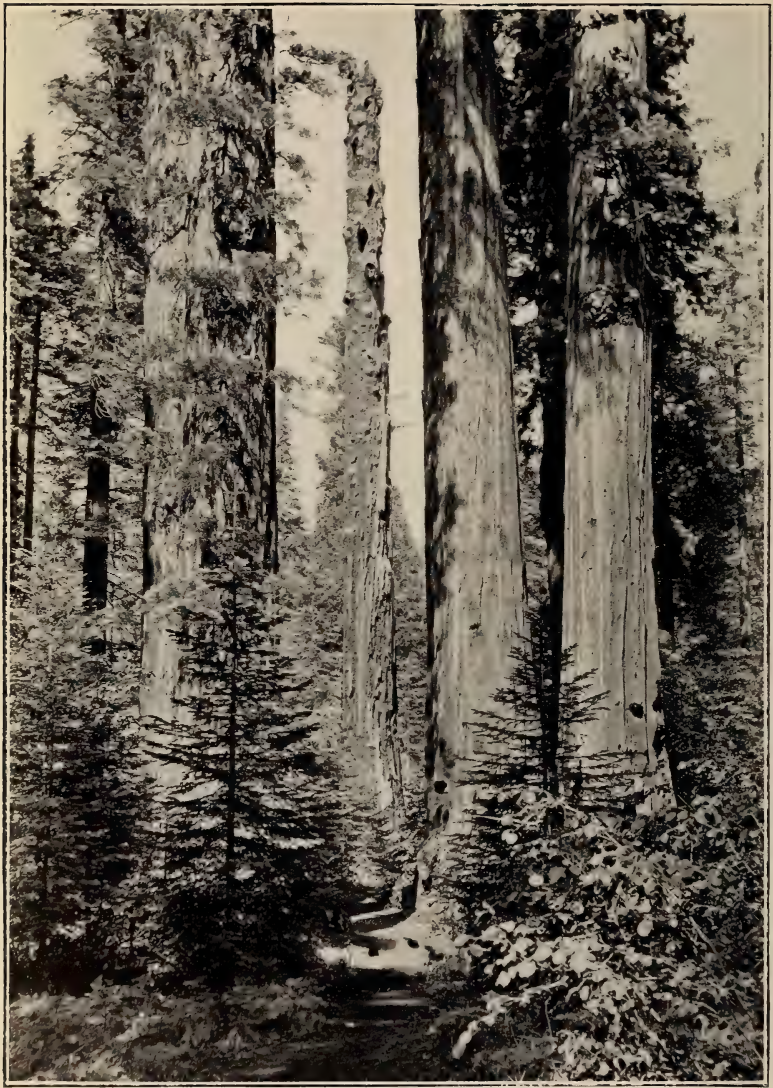


VIEW IN (NORTH) CALAVERAS GROVE OF BIG TREES (SEQUOIA WASHINGTONIANA). JOHN AND JOSEPH LE CONTE TREES.
Photograph by Walter L. Huber.



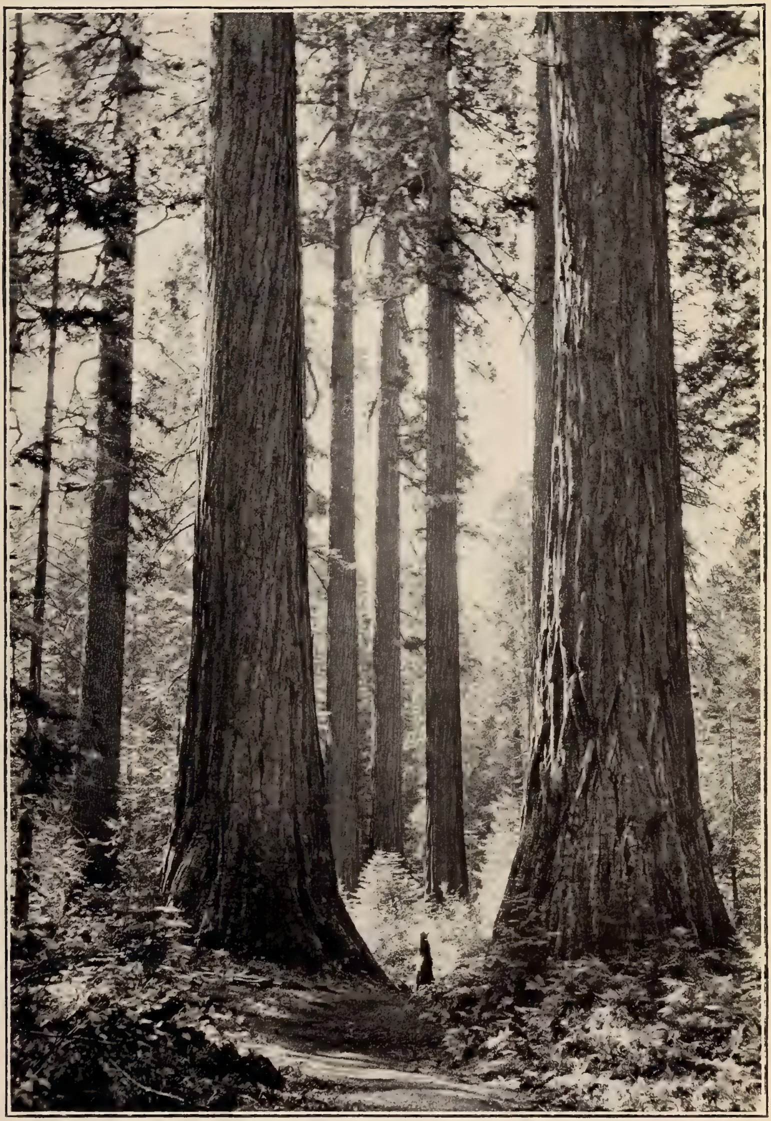
"PIONEER'S CABIN" TREE (SEQUOIA WASHINGTONIANA). BASE TUNNELED FOR DRIVEWAY.

Photograph by Walter L. Huber.

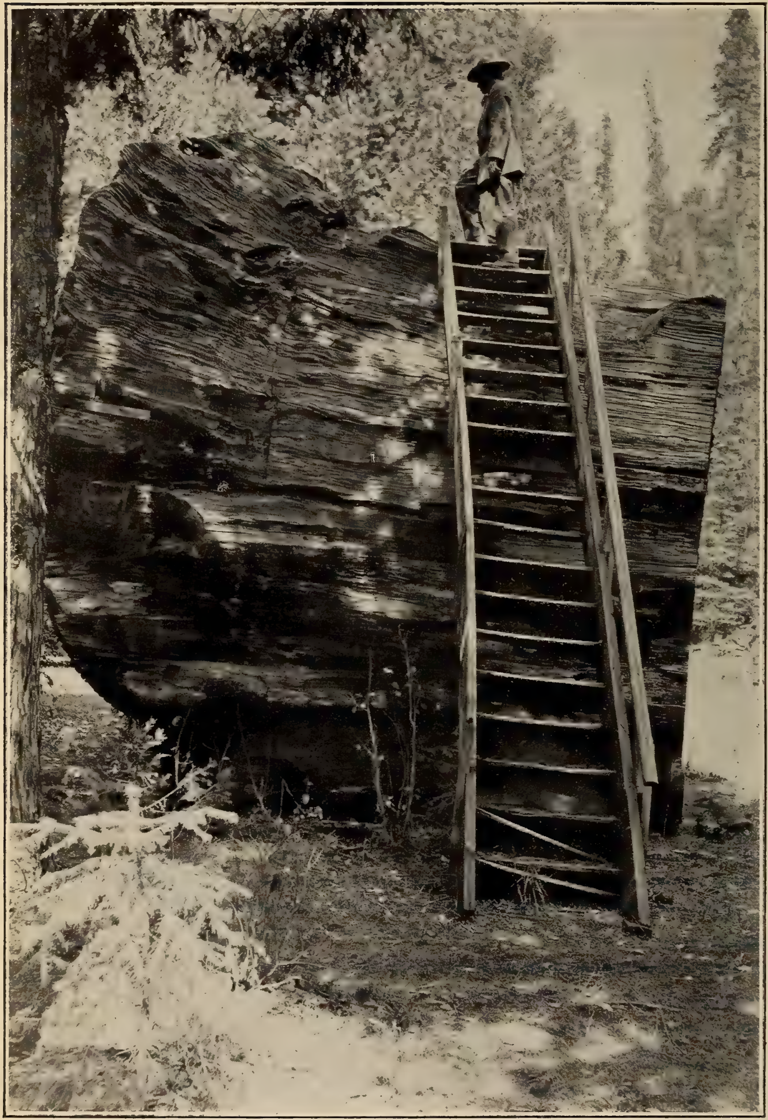


VIEW IN (NORTH) CALAVERAS GROVE OF BIG TREES (SEQUOIA WASHINGTONIANA). "MOTHER OF THE FOREST" TREE IN DISTANCE, NOW BURNED, CONTAINED 105,464 BOARD FEET OF LUMBER.

Photograph by Walter L. Huber.



VIEW IN (NORTH) CALAVERAS GROVE OF BIG TREES
(SEQUOIA WASHINGTONIANA).
Photograph by Walter L. Huber.



LOG FROM BASE OF BIG TREE (SEQUOIA WASHINGTONIANA) FELLED IN 1854, (NORTH) CALAVERAS GROVE. CIRCUMFERENCE 92 FEET. THE STUMP OF THIS TREE HAS BEEN SMOOTHED OFF TO FORM A DANCE PLATFORM.

Photograph by Walter L. Huber.

THE CALAVERAS BIG TREE GROVES.

By Walter L. Huber.

The Calaveras Groves of Big Trees are located in Calaveras and Tuolumne counties, some ten miles above the Mother Lode Mining Belt. These groves have been known since the early mining days of California and, in fact, were the first groves of big trees (*Sequoia washingtoniana*) to be discovered. (North Grove discovered by A. T. Dowd in 1854.)

The larger, known as South Grove, is in Tuolumne County. It covers an irregular area of 441.5 acres along the narrow V-shaped valley of Bigtree Creek, a tributary of the North Fork of Stanislaus River. The North Grove has an area of 49.5 acres and occupies a small basin drained by a tributary of San Antonio Creek, which creek is itself a tributary of Calaveras River.

The two groves are only about six miles apart, but are separated by a secondary divide from the Sierra Nevada Mountains and by the cañon of the North Fork of the Stanislaus River which is about one thousand feet deep. North Grove is easily accessible by a wagon road from Angels (twenty-two miles). South Grove is reached only by trail from a point on the wagon road near North Grove.

Both groves are entirely in private ownership. Almost all of the trees are owned by Mr. Robert Whiteside. Several attempts have been made to have their ownership returned to the National government. Congress has authorized the exchange for them of timber lands of equal value, but the owner has been unwilling to entertain this proposal. It is doubtful whether they can be obtained except by purchase, and this method has not up to the present time been authorized by Congress. These groves are a natural wonder well worthy of preservation, and it is to be hoped that they can be acquired by the Federal government and included in a National monument.

There are in the two groves 862 big trees (excluding 3,462 big trees less than thirty-six inches in diameter). Three individual trees contain more than 100,000 board feet of lumber each. The diameters of several trees exceed thirty feet and their heights are more than three hundred feet. Mingled with the big trees are hundreds of splendid sugar pine, white fir and yellow pine trees.

KERN RIVER TRAIL IMPROVEMENT.

BAKERSFIELD, CALIFORNIA, May 24, 1913.

MR. WM. E. COLBY,
402 Mills Bldg., San Francisco, California.

Dear Mr. Colby: I have submitted a plan for improving the trails in the Monache country, as follows:

A trail commencing at Kern Flats, Sec. 1, T. 20 S., R. 33 E., and extending northeasterly through the following points to Carrol Creek, in

Sec. 31, T. 16 S., R. 36 E.: Following the present trail to Jordan Hot Springs; thence to Casa Viejo (lower end); thence northward via River Spring to Indian Head; thence following the old trail to summit of Toowa Range; thence a new trail along this summit crossing east of Kern Peak; thence down Bear Creek (the creek following northward from Kern Peak); and up the South Fork, via the Tunnel and South Fork Meadows, and on to Mulkey Meadows along the old trail; thence across the summit via a new grade and around south of Horseshoe Meadows to the old mill on Cottonwood Creek; thence around the new grade to Little Cottonwood Creek; thence paralleling the old Hockett trail on a new grade down the mountain to Carrol Creek.

To secure an allotment from the 10 per cent Road and Trail Fund, it is necessary to show that the expenditure will render material benefit to the public at large as well as assisting in the administration of the forest in general, and an expression of opinion or an endorsement from the Sierra Club on this point would be appreciated.

The estimated cost of this trail to complete it is $2,800.00 or $66.66 per mile, it being 42 miles in length. The maximum grade contemplated is 15 per cent.

The proposed new trail near Kern Peak materially shortens the distance from Indian Head to the Tunnel and makes Kern Peak, which commands one of the finest views in the Sierras, easily accessible, as we plan to construct a side trail to its summit for the use of our fire lookout who is to be stationed thereon.

Another trail on which I have submitted plans for construction and requested appropriations, commences at Junction Meadows and extends northeasterly along Tyndall Creek, crossing the summit and descending Shepards Creek about two and one half miles, thence swinging over into Symmes Creek and connecting with the road shown on the Whitney topographic sheet. This trail would place Independence within twenty-four miles of Junction Meadow by trail. The seven miles of trail eastward has a short stretch of 20 per cent grade, the balance being 15 per cent. The estimated cost is $1,300.00, and $690.00 of this has been subscribed by stockmen and residents of Owens Valley.

I am told that for $500.00 a trail could be constructed from Tyndall Creek to connect with the Bubbs Creek trail.

I should be glad to know what you think of these two trails and to what extent you believe they will benefit the public in general.

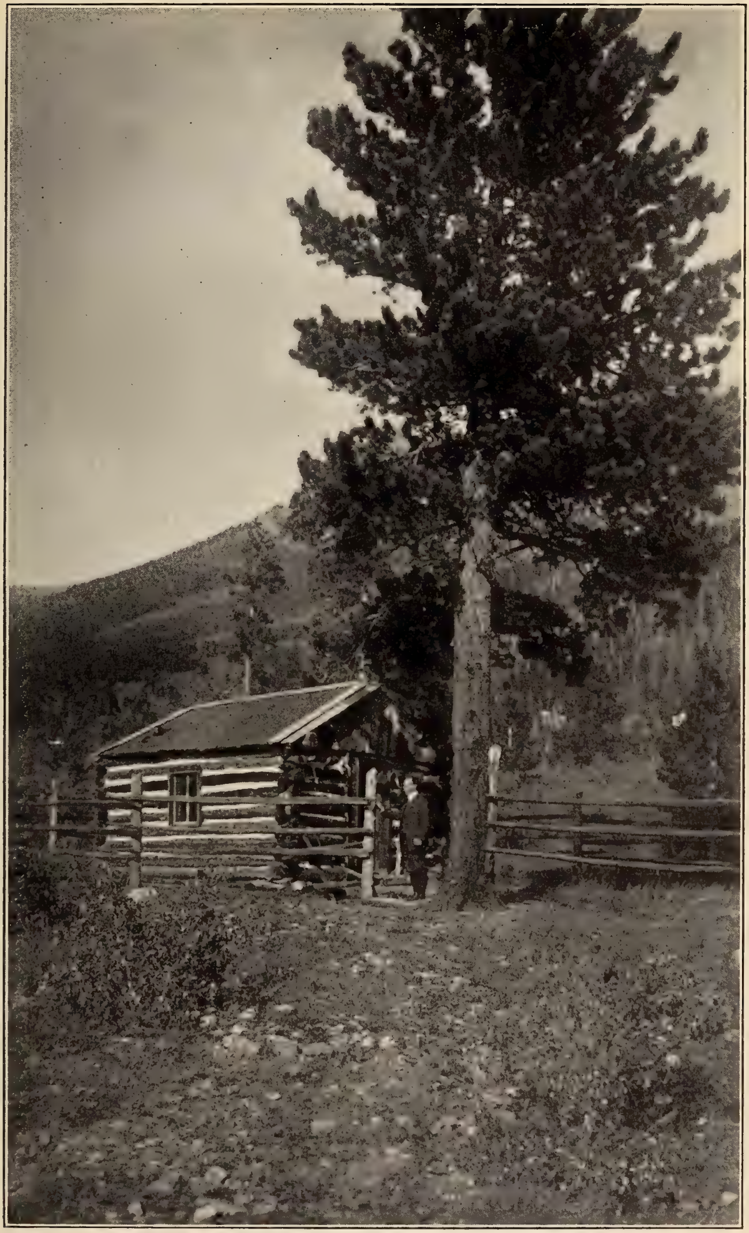
This outline can be more readily understood if copies of the Olancha and Mt. Whitney quadrangles are before you.

If you know of any means of our securing additional financial assistance in the construction of these trails, I would be glad to learn about it.

Very truly yours,

W. J. Rushing,

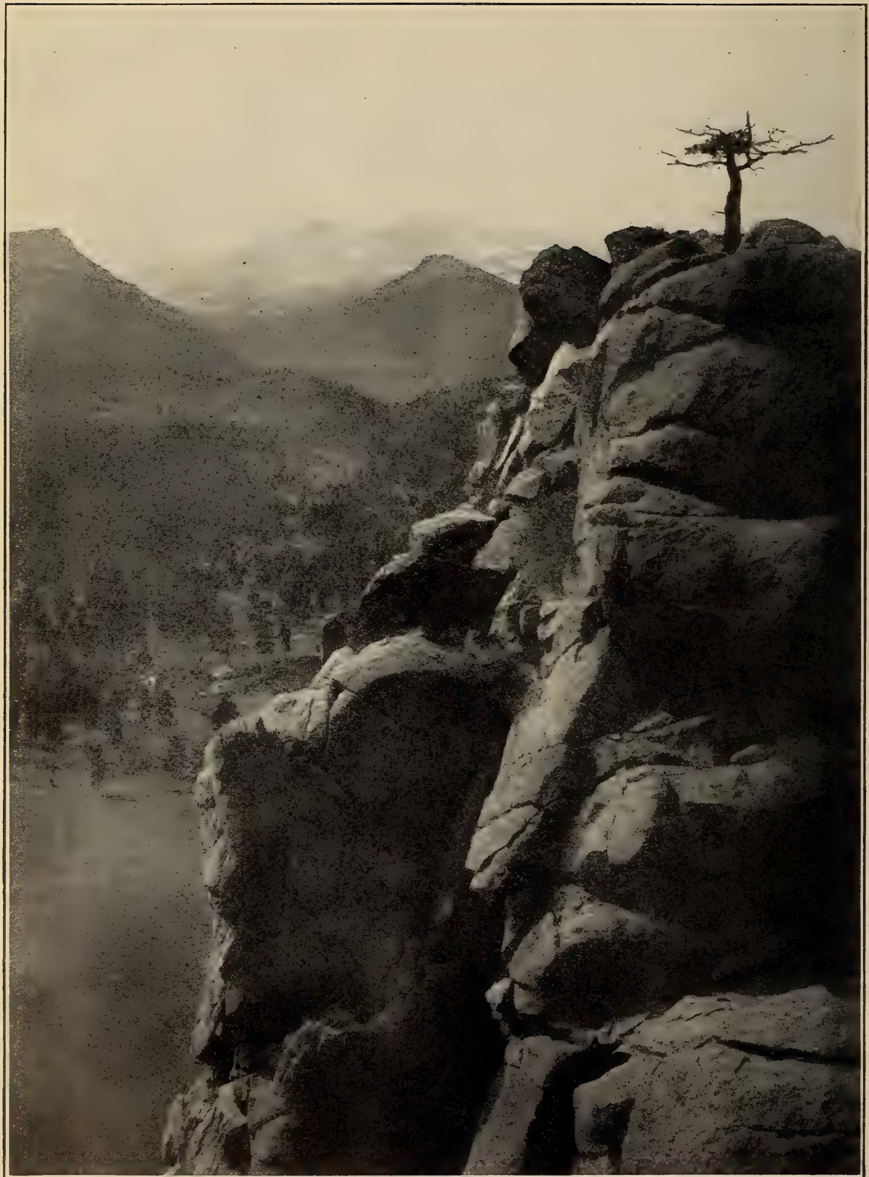
Forest Supervisor.



IN BEAVER WORLD. ENOS MILLS. THE CABIN WHICH HE BUILT AND IN WHICH HE LIVED TWENTY-FIVE YEARS.

See page 122.

Photograph by H. W. Gleason.



THE PROPOSED ROCKY MOUNTAIN NATIONAL PARK.
See page 113.
Photograph by H. W. Gleason.

NATIONAL PARKS.

PROPOSED ROCKY MOUNTAIN NATIONAL PARK.

The proposed Rocky Mountain National Park is a project heretofore known as the proposed "Estes National Park." At the suggestion of various persons the name "Estes" has been abandoned and the name "Rocky Mountain" adopted, as the former name is somewhat local and meaningless and the latter marks the park as being a typical area of the mid-continental Rocky Mountains; that is to say, an area of lofty granite peaks and intermountain plateaus.

The proposed boundaries, as agreed upon by all parties, comprise an area of about 700 square miles in north-central Colorado. The park is an irregular area bounded principally by streams and water divides, about fifty miles long by twenty miles wide at the maximum. It centers about Longs Peak, one of the best known of the Rocky Mountain peaks, altitude 14,255, at the foot of which is the home of Enos A. Mills. The park includes practically all the area which Mr. Mills' books have made familiar to the public.

Besides Longs Peak, the park includes a large number of other lofty peaks, including the following: Arapahoe Peak, 13,520 feet; Mt. Audubon, 13,173 feet; Hagues Peak, 13,554 feet; Fairchild Mt., 13,509 feet; Mummy Mt., 13,410 feet, etc. The park includes about fifty miles of the Continental Divide between the Pacific and Atlantic waters. In the area lie a very large number of small glacial trough lakes and at least one small glacier—probably more. The well-known towns of Estes Park and Grand Lake are on the borders of the park, but not in its boundaries. The park area proper is nearly all high mountain country, perhaps half of it being above timber-line and no considerable part of the area below 8,000 feet.

The park is one of the most accessible in America, as it is distant from Denver at the nearest point only about thirty-six miles as the crow flies, or about forty-five miles by road, and is still closer to the large towns of Boulder, Longmont and Loveland. The park possesses great possibilities as an area for automobile touring, inasmuch as the rounded contours of the country make it possible to build roads which will carry the automobile traveler for many miles along high ridges which exceed 12,000 feet in altitude. From these points a view can be had of perhaps thirty mountain peaks exceeding 14,000 feet in altitude and several hundred miles of the great American plains which break away from the mountains within twenty miles of the park.

The park has a flora very typical of the high transitional, subalpine and alpine zones, and a large animal life, including mountain sheep, ptarmigan and other timberline residents.

NATIONAL PARKS ILL KEPT—COST AND DIFFICULTY OF REACHING THEM DETER MANY TRAVELERS.

(N. Y. *Times,* October 20, 1912.)

TO THE EDITOR OF THE NEW YORK TIMES:

In the editorial article on "The Grand Cañon" you express surprise that Americans should be constantly crossing the Atlantic to visit the beautiful scenes and famous resorts of Europe while our own country is comparatively neglected, although it holds out to every traveler, and particularly in the great, wide West, such wonderful scenes of grandeur and beauty as few places in the world can show.

The explanation, I think, is not far to seek. Our National parks, which include within their boundaries these great masterpieces of nature, and which were set aside for the enjoyment and enlightenment of all the people, are not administered as they should be. It ought to be possible to visit the most interesting and impressive scenes over tolerably well-kept roads and trails, with an assurance of reasonable comfort and in a manner in keeping with the grand, simple, natural environment, and this should generally be possible at a cost within range of the traveler of average means. But he who expects to find these conditions will often meet with disappointment.

Our National parks and National monuments are administered by various departments of the Government—those of the Interior, War, and Agriculture—and, owing partly to this distribution of powers, it has not been possible to establish a uniform and well-considered system of supervision and development. The annual appropriations by Congress are entirely inadequate, except, perhaps, in the case of the Yellowstone National Park, to meet the many forms of expense connected with a thoroughly efficient management.

To those who have given the most serious and disinterested thought to the problem of our National parks and National monuments it has appeared that their many needs can best be met by placing them all under an independent bureau, a Bureau of National Parks, which shall be entrusted with their preservation, proper development, and administration.

Some day these grand National possessions will be appreciated. Then the thousands who now go to Europe will be glad to "see America first," assured of an ample return in pleasure, health, and instruction.

G. F. SCHWARTZ.

NEW YORK, October 17, 1912.

SECRETARY'S OFFICE, DEPARTMENT OF THE INTERIOR,
WASHINGTON, D. C., May 17, 1913.

Gentlemen:—Replying to your telegram of April 23d, petitioning, in joint meeting, the temporary opening of the Yosemite National Park to stock grazing to relieve the present drouth conditions existing in southern and central California, I have to advise you that I have given this matter most careful consideration and have considered your request from every possible standpoint. I realize the gravity of the situation as it presents itself to the livestock interests within the region affected. Much as I sympathize with those affected, and much as I am inclined to do what might be permitted under all the circumstances to relieve the situation, I regret that I must deny, for the present at least, your and other applications of like tenor.

Incident to the decision of an administrative question which was brought before the department in December, 1912, the Assistant Attorney-General for this department had referred to him by my predecessor the question—whether the Secretary of the Interior, under existing legislation respecting the Yosemite National Park, was authorized to grant leases of land in the park for grazing purposes,—and an opinion was rendered by him to the effect that under existing law the Secretary of the Interior had no authority to grant grazing leases or permits in the Yosemite National Park. Furthermore, I am advised that the meadow land within the park fit for general grazing which is not private property is comparatively limited in extent, and is the only land in the park outside the valley that tourists and campers could use to sustain their stock while enjoying the park, and that there has also been an increase in the deer and other game in the park, which the introduction of cattle or sheep would seriously affect.

The decision of the Assistant Attorney-General above referred to and the other phases of the matter, together with the fact that the law imposes upon me the administration of this reservation primarily for the benefit and enjoyment of the people, impels me to the conclusion reached and announced above. If it were not for these considerations, I would feel strongly prompted to afford the relief requested.

Very truly yours,
(Signed) FRANKLIN K. LANE.

THE CALAVERAS ALPINE ASSOCIATION, and
THE TUOLUMNE LIVESTOCK ASSOCIATION,
Sonora, California.

CAVES IN OREGON—PROPOSED NATIONAL PARK.

A very successful outing to the Josephine County caves of Oregon was enjoyed recently by the Mazama Club. One hundred and ten members made the trip. Mr. Wm. P. Hardesty, treasurer of the Mazamas says: "The caves are not 'mammoth' caves, but they are certainly wonderful and well merit the attention of tourists. The stalactite formations of marble are especially beautiful. A lighted candle held behind them illumines the entire structure and shows the delicacy of texture and color. The prevailing color of the walls is a cold stone gray, decorated by delicate traceries of light brown."

FORESTRY NOTES.

Wm. E. Colby, Editor.
Walter L. Huber, Assistant Editor.

Stock in the High Sierra. On account of lack of feed in the lower ranges, due to unusually dry weather conditions, many cattle and sheep men have applied to the Forest Service for relief. To meet this emergency, certain high Sierra ranges ordinarily closed to stock will be used this season. Approximately 40,000 head of sheep and 2,000 head of cattle will be cared for. Definite areas within these ranges have been reserved for campers' stock.

Timber Sales in California. Timber sale operations on the National Forests in California have been increasing at a rapid rate during the past few months and a number of important sales have been made. The largest of these was an 800,000,000-foot sale to the Sierra Sugar Pine Company on the Sierra National Forest. About seventy miles of railroad will be required in connection with this sale and two years are allowed in the contract for preliminary construction work before operations actually begin. The contract covers a cutting period of twenty years. This sale is in one of the best sugar and yellow pine regions of the State. Another sale of considerable size was made to the M. A. Burns Timber Company on the Shasta Forest, for a total of 182,273,000 feet.—*American Forestry.*

The States Rights Movement. We have seen the policies advocated by the Forest Service in the handling of timber, grazing, water power and lands, win their way to recognition in the face of bitter opposition, solely on their merits. Under national administration of the grazing privileges, stock wars have ceased, and the number of small owners of stock has increased tremendously. Lumbermen have found that they could do business with the Government, and of late have been willing to undertake contracts for twenty years. Settlers are given lands, but fraudulent claims are not permitted. It can now be stated with truth that the population directly dependent on and residing within or near these national forests is almost unanimous in its support of the present policy and ready to defend the Government against all attacks. The only local exceptions to this rule are found to be individuals who have been prevented from acquiring something to which they were not fairly entitled, such as a fraudulent mining claim or a timber homestead.

But this national policy is not without its enemies, and they are numerous and powerful. In almost every instance, the opponents of the Forest Service are found to be directly interested in some form of special privilege which would flourish with less interference should the strong hand of the Nation be withdrawn. Cloaked under various disguises, one of which is the plea that agricultural lands are being deliberately withheld from deserving pioneers, these interests are endeavoring to secure:

1. Free and unregulated grazing, which would enable owners of large bands of sheep to monopolize the public range and drive out the small owner and cattleman.
2. Freedom from close inspection of mining claims, which would permit the patenting of wildcat mines or the acquiring of valuable timber under false pretenses.
3. Throwing open of large areas of land containing timber of immense value, in order that title may pass from the Nation to individuals and thence to large lumber companies and corporations.
4. Removal of restrictions on cutting, so that full exploitation of the forests may take place immediately with no provision for securing reproduction and a future crop of timber.
5. Encouraging an influx of settlers upon lands regardless of their agricultural value, in order to boom communities for the benefit of railroads, real estate values and trade.

Attempts to break down the national forest administration and secure these objects have largely failed, due to the high standard of integrity and ability that has so far been maintained in the Forest Service from the chiefs down through the rank and file to rangers and forest guards.

Despairing in this effort, the political opponents of the national forest policy now advance the plea that these resources belong by right to the States and should speedily be turned over to them. No one need misunderstand this argument for an instant. It is urged with the hope that the States will prove less obdurate and will permit the exploitation of these national reserves in a manner more in keeping with the desires of the larger interests.—*American Forestry.*

BOOK REVIEWS.

EDITED BY MARION RANDALL PARSONS.

"THE STORY OF MY BOYHOOD AND YOUTH."*

The life of a child among educated people to-day is so sheltered from hardship, so protected from even minor discomfort, that the story of this stern Scotch boyhood comes to us almost like a record from a different world. We read how Mr. Muir was sent to school before he had "completed his third year," and how a little later long lessons in French, Latin, and English, in spelling, history, arithmetic, and geography were supplemented at home by so many Bible lessons that "by the time I was eleven years of age I had about three-fourths of the Old Testament and all of the New by heart." After the journey to Wisconsin, for long school tasks and the sound thrashings that accompanied each mistake was substituted the unremitting toil of reclaiming a farm from the wilderness—in summer time a "hard sweaty day of about sixteen or seventeen hours" of heavy farm labor, where "grinding scythes, feeding the animals, chopping stove wood and carrying water up the hill from the spring" constituted the chores to be done before breakfast, a mere prelude to the real work in the harvest fields; in winter, though "fuel was embarassingly abundant and cost nothing but cutting and common sense . . . the only fire for the whole house was the kitchen stove . . . around which in hard zero weather the whole family of ten persons shivered, and beneath which in the morning we found socks and coarse, soggy boots frozen." "Excepting Sundays we boys had only two days of the year to ourselves, the Fourth of July and the First of January. Sundays were less than half our own, on account of Bible lessons, Sunday School lessons and church services."

There is much in the book to make us thankful that brighter, easier lives fall to the lot of the children we now know. Yet when we consider the discipline of mind and body, the fortitude, the rare powers of concentration, the keen appreciation of the scanty hours of pleasure that this harsh existence engendered, we wonder whether the indulged children of to-day, satiated with amusement and ignorant of work, will at three score years and ten face life with the unfailing interest, the zest of enjoyment, the unflagging intellectual activity that so distinguish Mr. Muir to-day. It was a life, perhaps, to deaden the ambition and dull the perceptions of many a child; but in this vigorous Scotch lad the hunger to learn and create, the interest in wild nature and love of its beauty rose triumphant above hard labor and time-starved opportunity.

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* *The Story of My Boyhood and Youth.* By JOHN MUIR. Houghton Mifflin Company, Boston and New York. 1913. With illustrations from sketches by the author. 287 pages. Price, $2.00 net.

Of absorbing interest is the story of the growing boy wresting from his hours of sleep the leisure to work out his inventions—his "early-rising machine," self-setting sawmill, thermometer, etc., which were destined to open the door for the education he so longed for. Equally absorbing are the chapters on the plant and animal life of that Middle West wilderness, much of it vanished now as are the vast fields of California wild flowers that Mr. Muir also saw in their full glory. Of the passenger pigeons he says, "I have seen flocks streaming south in the fall . . . like a mighty river in the sky, widening, contracting, descending like falls and cataracts, and rising suddenly here and there in huge ragged masses like high-plashing spray."

The book is full of beauty and of the exultant joy of youth. "Oh that glorious Wisconsin wilderness! Everything new and pure in the very prime of the spring when Nature's pulses were beating highest and mysteriously keeping time with our own! Young hearts, young leaves, flowers, animals, the winds and the streams and the sparkling lake, all wildly, gladly rejoicing together!" As we close its covers the strongest impression that lives with us is of a boy's life, not darkened by long days of toil, but brightened by an inner light that made visible to him the glory and the wonder of the world. Like the little black water-bugs whose playing in the meadow springs he loved to watch, Mr. Muir's heart all his life seems to have been "dancing to a music" most of us never hear. M. R. P.

"OUR VANISHING WILD LIFE." During the past year more laws have been enacted for the preservation of our American bird life than at any time in the country's history. To achieve this no single influence threw as much weight into the scale as Director William T. Hornaday's "Our Vanishing Wild Life."* Its burning and indignant pages remind one of the zeal of the old anti-slavery days when the force of great moral convictions won the day against greed and wrong. The book is profusely and beautifully illustrated, and packed with a startling array of facts from cover to cover. An idea of its importance may be gathered from the fact that the New York Zoological Society has expended nearly ten thousand dollars in printing and distributing copies of the book to every law-maker in the United States, every governor, every State game commissioner and State game Warden, and about five hundred newspapers. During the recent successful campaign of the California Associated Societies for the enactment of better protective laws in California a copy of the book was sent to every member of the Assembly and of the Senate. Mr. Hornaday makes it clear that wild life has its ethical as well as its sentimental and practical aspects. When one considers that within the memory of man twenty-three species of North American birds have practically been exterminated and that each year two and one-half million gun-men are shooting the life out of the dwindling remainder, it is apparent that this book comes not a moment too soon. There surely is something absurdly wrong about the fact that the nation whose totem is the eagle and whose thanksgiving divinity is the turkey should be doing its best to exterminate them as completely as California has exterminated its totem, the grizzly bear. If a single specimen of the latter is still alive it will have to be sought in the zoological garden in Berlin! This book deserves wide reading and is almost sure to run through many editions. W. F. B.

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* *Our Vanishing Wild Life.* By WILLIAM T. HORNADAY. Charles Scribner's Sons, New York. Price $2.00.

"WILD LIFE AND THE CAMERA."* What aid the camera may render the naturalist is remarkably shown in this very attractive volume by A. Radclyffe Dugmore. Perhaps the most interesting phase of his pursuit is the opportunity it affords to study the individual characters of the birds and animals he has so successfully photographed in their natural surroundings in the open. A firm believer in animal intelligence, Mr. Dugmore is far from carrying his theories to the extravagant lengths of some writers. His views are presented modestly and are based on actual observation of many individuals of the same species.

Speaking of the concealment of bird's nests for the protection of their young, he says, "In taking these precautions the bird may be said to be simply following out the habits of its nature, so that it does come under the heading of that much-abused word 'instinct.' But at times birds are forced to resort to remarkable expedients that their eggs and young may be protected. Then it is that we see a display of what can only be termed intelligence: a careful weighing of existing conditions and formulating of plans to outwit enemies." He cites an instance, illustrated with photographs, of a pair of red-eyed vireos who entirely rebuilt their nest to rid themselves of an egg laid there by a parasitic cowbird. Tameness among wild creatures Mr. Dugmore believes to be "a quality . . . of the natural disposition of the individual. . . . With some birds I have spent days in trying to convince them that I intended no harm . . . others of the same species became accustomed to my presence after less than an hour."

The chapters devoted to the birds are all delightful. Wonderfully appealing and attractive are the photographs of parent birds and nestlings. Among the chapters on fishing, that relating to the golden trout will particularly interest Sierra Club members. "In point of beauty," Mr. Dugmore thinks, "the golden trout should be given first place among the freshwater fish of North America . . . the most exquisite, dainty and wonderfully colored."

The Caribou Migration of Newfoundland, the tracks of animals in the snow, and the story of a porcupine and a possum hunt are among other good things in this book. It has not a dull page in it and the photographic illustrations cannot be too highly praised. M. R. P.

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* *Wild Life and the Camera.* By A. RADCLIFFE DUGMORE, F. R. G. S. J. B. Lippincott Company, Philadelphia. 1912. Illustrated. 332 pages. Price, $2.00 net.

"FIELD-DAYS IN CALIFORNIA." California recently brought a number of notable eastern writers under its spell. Among these was Bradford Torrey, who served his apprenticeship as a bird student and nature lover in the East. His regularly appearing books gained for him a steadily enlarging circle of readers. For three years he had been a resident of beautiful Santa Barbara. There he died last autumn before he had seen even a proof of the latest and, unfortunately, last of his books, "Field-Days in California."* In the delightful opening chapter of "A California Beach" he offers his apology for having fled the more rigorous chastisements of a New England climate. "The implacable years," he writes, "are having their way with me; the almond tree begins to flourish. . . . It is time to be comfortable, something tells me; and so, as bad boys were said sometimes to do in other days, I have run away from school." It seems part of the fitness of things that he was the editor of Thoreau's Journal. No one of our day had more of the latter's unaffected intimacy of observation and simplicity of statement. This book exhibits him at his best. It is full of fascinating ornithological incidents told with scientific truthfulness and great charm of expression. The publishers have appropriately sought to give the volume something of a memorial character by providing a portrait of the author and illustrations of localities treated in the book. W. F. B.

"THE EPHEBIC OATH AND OTHER ESSAYS." † A book of unusual merit is this dainty volume of essays by Alexander McAdie. In its sincerity, its high idealism, its beauty and simplicity of style it may well rank some day as a classic. Many of the descriptive passages are very fine, particularly of the sea fogs which Mr. McAdie loves so well. "Seen from above, the fog is no longer gray and forbidding, but white as driven snow, a coverlet that throws back into sunlit skies the genial warmth of summer days. . . . The very soul of the sea, it rises like a spirit from the breast of waters. . . . Seen from below, a level sweep and monotone of drab; seen from above, a ruffled sea of light and shade, a billowing cradle for the imperious winds." A true San Franciscan, Mr. McAdie also loves the hills. "Although we dwell near the water's edge, we are at heart and in essence a hill people . . . the call of the hills is with us in our busiest hours and eager faces are lit by the soul's yearning for the freedom of the uplifted places, the sacred stillness of the heights. . . . In temples built of unhewn stone we worship, and with one impulse bow before the widespread altars of cloud and sky and hill, asking a rebirth of our better selves." The book, which is most attractively printed and illustrated, is a bit of pure literature of which Mr. McAdie may justly be proud. M. R. P.

***Field-Days in California.* By BRADFORD TORREY. Houghton Mifflin Company, Boston. $1.50 net.

† *The Ephebic Oath and Other Essays.* By ALEXANDER MCADIE. A. M. Robertson, San Francisco. 1912. Decorations by Lucia K. Mathews; frontispiece by Arthur F. Mathews. 63 pages. Price, $1.50.

"IN BEAVER WORLD."* Another interesting book on wild life based on long and intimate personal knowledge and observation is from the pen of a fellow Sierra Club member, several of whose former works have already been mentioned here. For twenty-five years Mr. Enos A. Mills has been a lover and student of the mountains of the West, notably of Colorado. Early becoming interested in beaver life, during all this time Mr. Mills has had certain colonies of beaver under observation, has noted and taken measurements of their wonderful engineering works—their dams, canals, and houses, has watched the cutting of their harvests and the disasters that wiped out whole colonies or forced the survivors to emigrate. Remarkable instances are given of the magnitude and scope of the work undertaken successfully by these busy denizens of stream and pond. "As animal life goes," Mr. Mills thinks, "that of the beaver stands among the best. His life is full of industry and rich in repose. He is home-loving and avoids fighting. His lot is cast in poetic places."

Though mostly composed of new material, several papers concerning beaver that have already appeared in his earlier books are properly included here, notably chapters in the life of his favorite Moraine Lake Colony. A significant point in the value of nature study is made in Mr. Mills' concluding pages. "Beaver works may do for children what schools, sermons, companions, and even home sometimes fail to do—develop the power to think. No boy or girl can become intimately acquainted with the ways and works of these primitive folk without having the eyes of observation opened, and acquiring a permanent interest in the wide world in which we live." M. R. P.

"CALIFORNIA COAST TRAILS."† Another book crammed full of outdoor interest is J. Smeaton Chase's "California Coast Trails." The author is an Englishman who has resided in California for some time. Accompanied on the first lap of his cruise by an artist companion, Mr. Chase made a nearly continuous trip on horseback from Mexico to the Oregon boundary. He followed the coast, carrying his simple camping outfit on the animal he was riding. According to his own testimony, "the facts and beauties in nature and the humane and historic elements in life" were the "points of special attraction" on this pilgrimage. One must adjudge him to have been notably successful in his attempt to portray these elements of California life, for he has produced a very readable volume. Sketches of the old missions, occasional humble survivals of Spanish-Californian life in out-of-the-way places, and glimpses of sleepy villages far from the railroads, are mingled with exhilarating descriptions of ever changing scenery. Incidents both comic and serious enliven the narrative, and one is glad, finally, that the author was not swallowed up in the quicksand from which he had such a narrow escape.

W. F. B.

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* *In Beaver World.* By ENOS A. MILLS. Houghton Mifflin Company, Boston and New York. 1913. With illustrations from photographs by the author. 221 pages. Price, $1.75 net.

† *California Coast Trails.* By J. SMEATON CHASE. Houghton Mifflin Co., Boston. $2.00.

"UNDER THE SKY IN CALIFORNIA."* To many people, who, from a very reasonable distrust of their physical hardihood have denied themselves the coveted experience of life in the open, this readable volume, "written out of the personal experience of man and wife of very limited physical strength," may prove an inspiration and an example. Desert, Sierra, and Coast Range alike offered a field to these mildly adventurous sightseers. Traveling sometimes afoot, sometimes horseback, oftener in a wagon, these Easterners became better acquainted with out of doors California than is one native born Californian in a hundred. The Mission pilgrimage is entertainingly described, and "Springs Days in a Carriage" were devoted to traversing Ramona's country. The chapters on the Deserts and the Mountains include most of the camp experiences. In the main the advice offered the more sybaritic type of camper is excellent; but we, who must needs plead guilty to that "general soiled air of wildness" in our woodland hours that Mr. Saunders so deplores, may yet venture to take issue with him on some of his refinements of "comfort." The use of silver spoons and white linen napkins while camping as a solace to one's self-respect hardly seems to justify the additional sense of responsibility they entail. One of the great benefits of camp life, particularly to a woman, is the emancipation it offers from the thousand petty, shackling details that go to make up her average day at home. Let even the most luxurious camper beware then how he imports the thralldom to externals into the free life of the open. However, as Mr. Saunders very justly remarks, "Only time and experience can show each camper the exact measure of his or her own needs."

M. R. P.

"THE CLIMATE AND WEATHER OF SAN DIEGO, CALIFORNIA."† Few visitors to the Sierra Nevada return to the lowland regions without a new conception of and interest in the beauty of cloud scenery, there most gloriously manifested. It is a beauty that dwellers in cities may enjoy no less than their more beauty-blessed brethren of country or sea-coast districts. In this admirable book on San Diego climatic conditions, written by a Sierra Club member, several intensely interesting chapters are devoted to cloud formations. Though dealing specifically with San Diego, many of the subjects touched upon are of general as well as local interest. Among these may be mentioned "Mirage, Halo, and Aurora," "Ocean Currents and Weather Conditions," and Meteorological Myths." The San Diego region has long been noted for its delightful and equable climate and to the doubter the reasons for its matchless healthfulness and charm are demonstrated by statistical tables and charts. But apart from the value of its accurate scientific information the book has decided merit. It is attractively printed and bound, and the photographic plates, mostly of cloud subjects, are excellent. M. R. P.

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* *Under the Sky in California.* By CHARLES FRANCIS SAUNDERS. McBride, Nast & Co., New York. 1913. Illustrated from photographs mainly by C. F. and E. H. Saunders. 299 pages. Price, $2.00.

† *The Climate and Weather of San Diego, California.* By FORD A. CARPENTER, Local Forecaster. The J. Horace McFarland Company, Harrisburg, Pennsylvania. 1913. Published by the San Diego Chamber of Commerce. Illustrated with photographs and charts by the author and others. 118 pages.

"THE SECRET OF THE BIG TREES."[*] From a famine in Palestine in the days of the Prophet Elijah to the forests of the Sierra Nevada to-day is a far cry, says Mr. Ellsworth Huntington in his recent paper entitled "The Secret of the Big Trees."[*] Nevertheless a connecting link between these widely separated epochs exists in our big trees. His studies show that the rings of growth in the sequoias indicate that in general the same sequence of climatic changes took place in California and Asia Minor. As the history of climatic changes seems to bear a close relationship to the history of civilization and the movement of races, Mr. Huntington's research opens up questions of very far-reaching import. The paper is intensely interesting and has many fine illustrations. M. R. P.

"TO THE APEX OF THE SELKIRKS."[†] The May, 1913, issue of the *Outing Magazine* contains an interesting paper by Howard Palmer, Secretary of the American Alpine Club, on the first ascent of Mt. Sir Sandford, the "Apex of the Selkirks."[†] Situated in the little known region included within the Big Bend of the Columbia River, and so remote that it "compels its assailants to transport their equipment on human shoulders for the better part of a week as a preliminary to the attack proper." Sir Sandford had withstood the attempts of sixteen climbers and their guides, "a record believed to be without parallel in the annals of Canadian mountaineering." The story of its conquest, though modestly told, plainly reveals the difficulties and dangers that were at last successfully overcome. M. R. P.

"THE CANADIAN ALPINE JOURNAL."[‡] The 1912 issue of the "Canadian Alpine Journal"[‡] contains many papers of interest. The Alpine Club's expedition in 1911 to Yellowhead Pass and the Mt. Robson region is the subject of the leading article. Three scientific papers on the mammals, birds and plants of this region, contributed by scientists sent to join the party by the Smithsonian Institute, are issued as a special number. Both volumes are splendidly illustrated with photographs and maps. M. R. P.

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[*] *The Secret of the Big Trees.* By ELLSWORTH HUNTINGTON. Government Printing Office, Washington, D. C. 1913. This publication may be purchased from the Superintendent of Public Documents, Washington, D. C., for 5 cents.

[†] *To the Apex of the Selkirks.* By HOWARD PALMER, F. R. G. S. *Outing Magazine,* May, 1913. Price, 25 cents.

[‡] *The Canadian Alpine Journal.* Published by the Alpine Club of Canada. 1912. Vol. IV. Price, $1.00.
The Canadian Alpine Journal, 1912. Special number. Price, $1.00.

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No. 49

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Vol. IX No. 3

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JANUARY, 1914

Smithsonian Institution,
MAR 28 1914
National Museum.

SAN FRANCISCO, CALIFORNIA

1914

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WILLIAM FREDERIC BADÈ

JANUARY, 1914

Vol. IX No. 3

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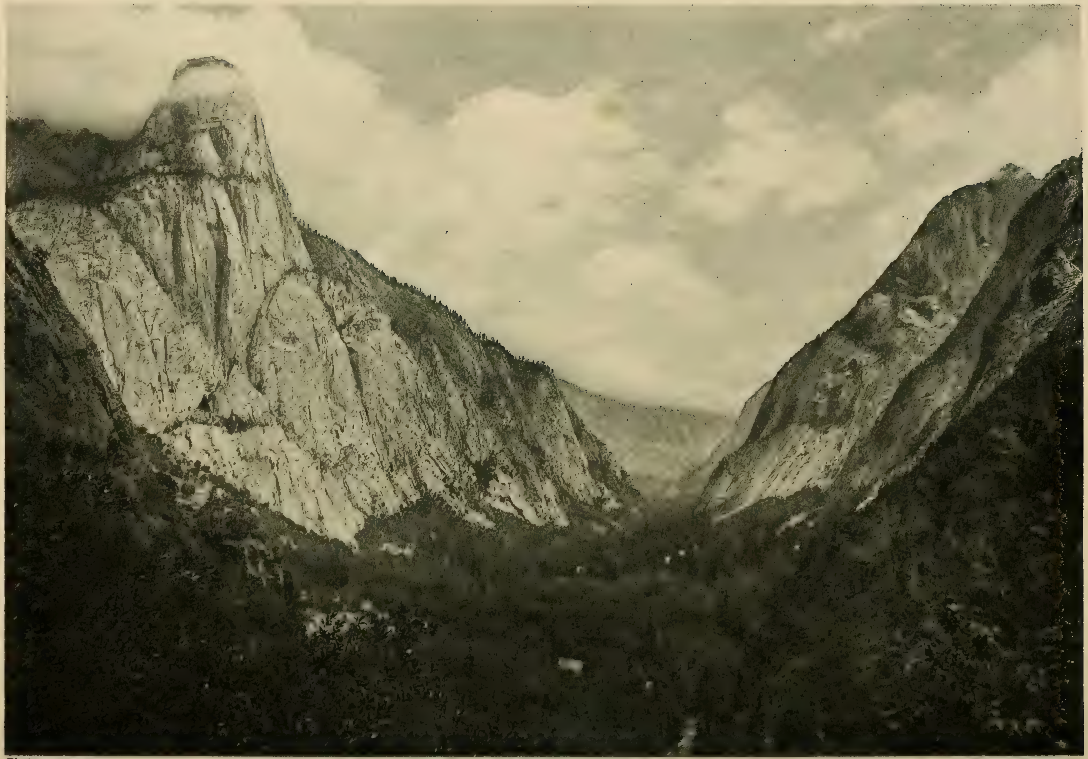

Photogravure *From Photograph by Herbert W. Gleason* *John Andrew & Son*

TEHIPITE VALLEY, MIDDLE FORK OF KING'S RIVER.

SIERRA CLUB BULLETIN

VOL. IX SAN FRANCISCO, JANUARY, 1914 NO. 3

TEHIPITE VALLEY

By John Muir

Tehipite Valley on the middle fork of Kings River is about three miles long, half a mile wide, and the walls are from 3,500 to nearly 4,000 feet in height. The level floor is planted with oaks and pines, libocedrus, etc., forming charming flowery groves like those of Hetch Hetchy and Yosemite, enclosed by majestic granite walls which in height and beauty and variety of architecture are hardly surpassed by any other Yosemite in the Sierra. Several small cascades coming from a great height sing and shine among the intricate architecture of the south wall, one of which, when seen in front, seems to be a nearly continuous fall about 2,000 feet high. But the grand fall of the valley is on the north side, made by Crown Creek, a stream about the size of Yosemite Creek. This is the Tehipite Fall, about 1,800 feet high. The upper portion is interrupted by dashing cascades but the last plunge is made over a sheer precipice about 400 feet in height into a beautiful pool in a recess of the valley floor. To the eastward of the fall is the great Tehipite Dome, a gigantic round-topped tower about 3,600 feet in height, the most striking and wonderful feature of the valley, and one of the most wonderful of all the famous domes of the Sierra.

Smithsonian Institution
MAR 23 1914
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SCRAMBLES ABOUT YOSEMITE

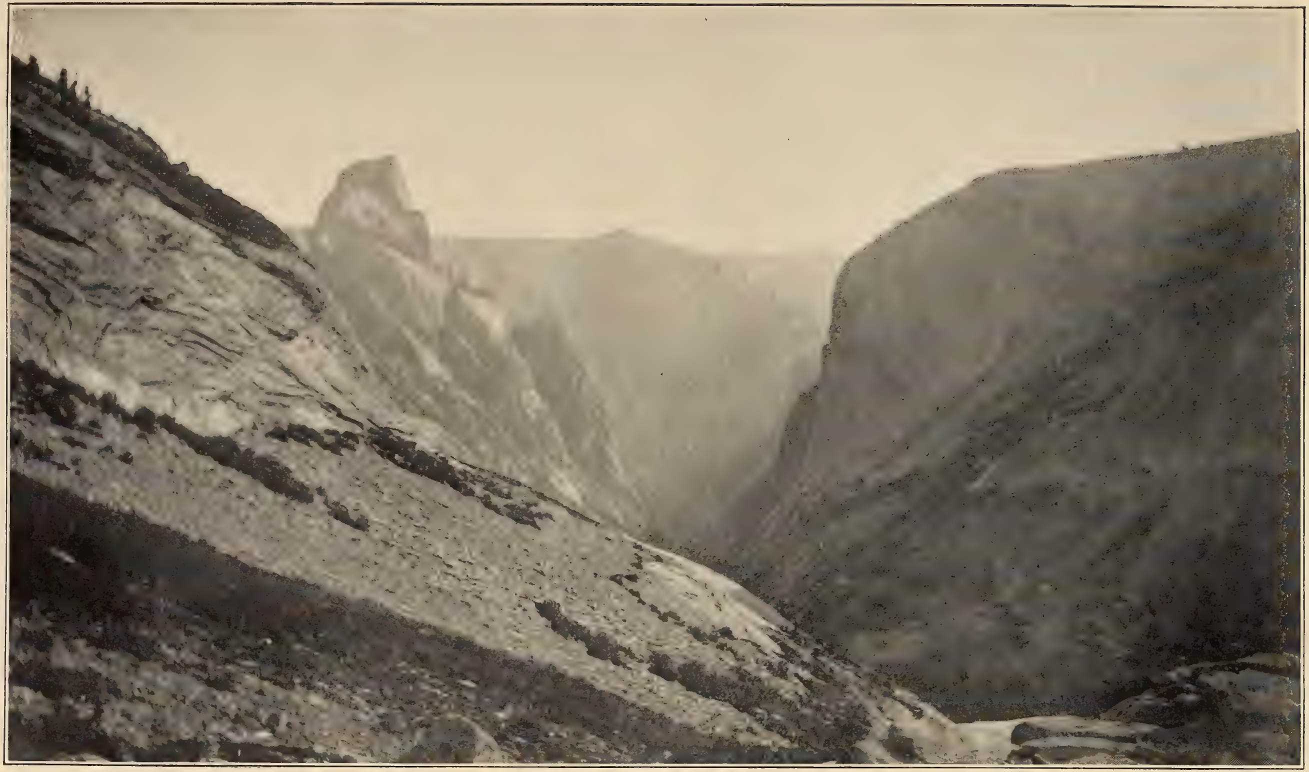
By Joseph N. Le Conte

During the summer of 1912 I had the pleasure of camping, with a party of friends, for five weeks in the Yosemite Valley. I know of no other place in the Sierra so well suited for a permanent camp. It is easy of access, and is a point to which supplies and camp equipment are easily and quickly sent. By spending a little time in searching, it is easy to get a campground fairly well removed from the more crowded portions of the valley, and certainly no more beautiful spot can be found in the whole length and breadth of the Sierra Nevada.

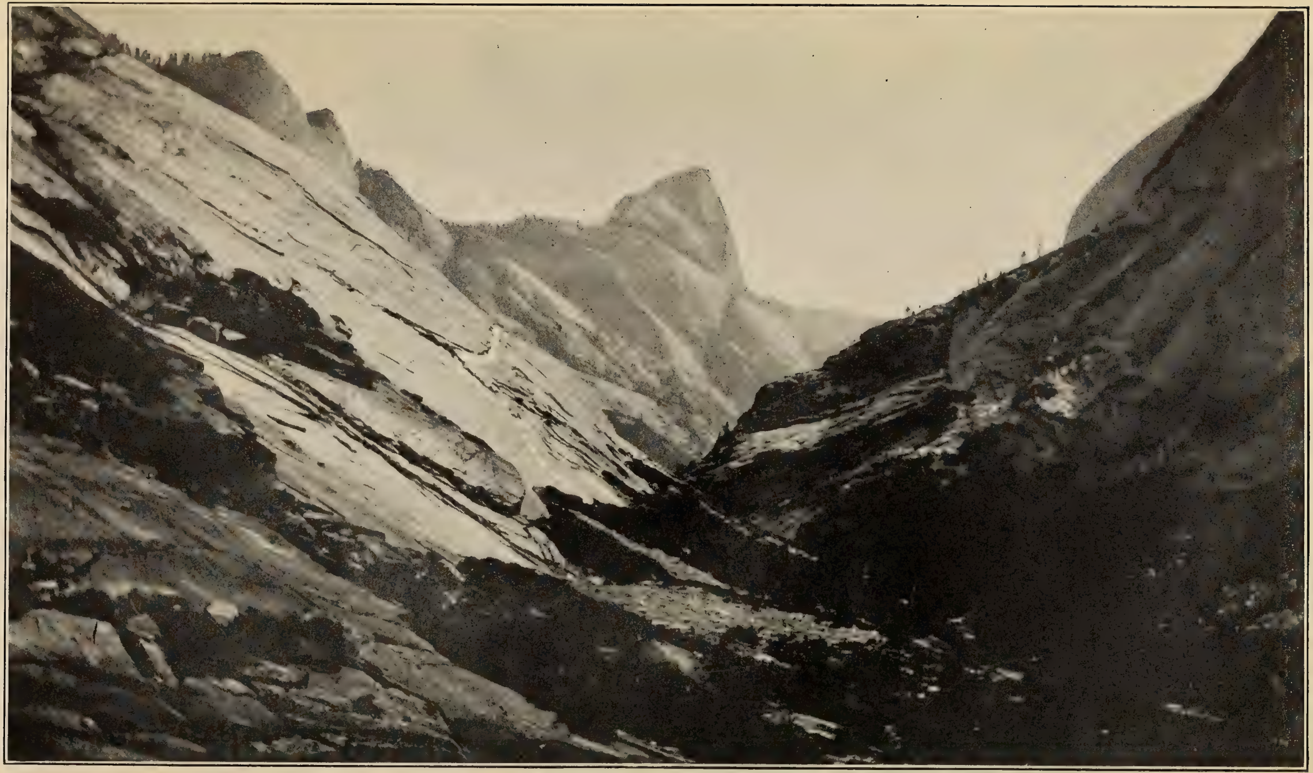
It is claimed by some that Yosemite is so overcrowded as to make camp life disagreeable, and that climbs in and about the valley are tame as compared with other portions of the Sierra, especially the higher portions. In answer to the first, I can only say that those who make this complaint must insist on keeping in the dusty roads and streets; whereas by striking off in almost any direction, one can in a very few minutes get into as wild a region as can be found anywhere. As an answer to the second, I hope the following notes will suffice.

We reached the Yosemite on the 25th of June, and joined the party already established in the beautiful little camp on the south bank of the Merced just below the Stoneman Bridge. For the first few days we visited the old points of interest—Glacier Point, Vernal and Nevada Falls, Yosemite Falls, and many others, both to renew old acquaintances, and to break in new shoes. On July 6th a small party, consisting of Mr. and Mrs. Jas. Hutchinson, Miss Taggard and myself, took a seven-day trip by way of Lake Merced to the Tuolumne Meadows, returning by way of Lake Tenaya to Yosemite Camp.

Shortly after this Mr. Hutchinson and I made plans for a trip up the Tenaya Cañon. I had heard and read of the wonders of a trip through this gigantic gorge, and decided not to let another summer pass without taking a peep into it. I had



VIEW DOWN TENAYA CAÑON FROM TOP OF UPPER FALL.
Photo by J. N. Le Conte.



VIEW DOWN OVER THE LOWER PART OF TENAYA CAÑON, SHOWING ROUTE ALONG LEDGE.
Photo by J. N. Le Conte.

often heard Mr. Muir describe his trip through it in the early days, had heard Chas. Bailey relate his experiences, and had read the accounts of Corbett and Gibbs, who went through in 1894, and of Foster, who made it in 1909. As all these except Mr. Muir had come down the gorge, Hutchinson and I decided to make a trial in the reverse direction. So plans were laid for a start on the evening of July 19th.

The Tenaya is one of the grandest cañons of the Sierra. It heads just south of Lake Tenaya, and trends southwesterly to the upper end of Yosemite Valley. In general, its cross-section is U-shaped, a typical glacial cañon. For several miles of its length it is between 4,000 and 5,000 feet deep. The highest slope is on the east, where the tremendous masses of Half Dome and Clouds Rest form the wall. Perhaps the deepest part is just below the crest of Clouds Rest, where there is an unbroken slope of polished granite fully 5,000 feet in vertical height on the east, while on the west the domes of Mt. Watkins tower 4,000 feet above the stream. Just here the creek has cut a box cañon in the bed of the great polished glacial trough, and the smooth slopes on either side approach the edges of this at so high an angle that it is very difficult to pass around the gorge. Above and below the box cañon the great gorge is choked with boulders and brush, rough but not dangerous; but again at the very head of the cañon there is a fall or slide over the polished granite some 500 feet high, which furnishes an interesting problem for the climber.

Hutchinson and I packed our knapsacks on the afternoon of the 19th. We took food for two or three days, for it was not possible to tell how long we might be trapped in the cañon. We took a small camera, two empty tin cans for cooking, and, most important of all, a pair of rubber-soled tennis shoes, or "sneakers," for polished granite. We also took our sleeping-bags as far as the first night's camp. That evening we took dinner with the main party, and about 6:30 P. M. "hiked" out up the road to Mirror Lake, and then along the fine new trail to the foot of the steep zig-zags which have recently been built up to the top of the wall opposite Half Dome. Here we left the trail and camped in a beautiful spot on the banks of Tenaya Creek.

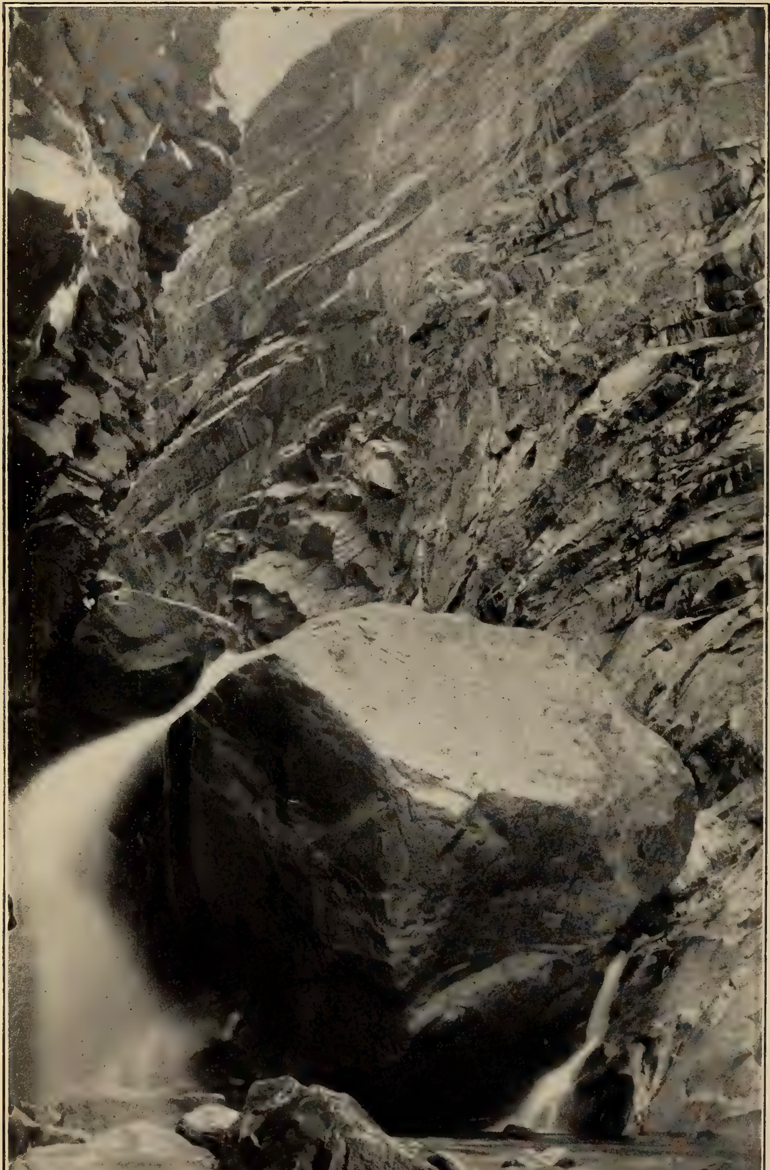
It is needless to say we were up early. With the unknown troubles ahead, I for one did not need an alarm clock, but was awake hours before the appointed time of 4 A. M. After a hasty breakfast of mush, coffee, and bread, we repacked our knapsacks, hid our sleeping-bags amongst the rocks near the trail, and long before sunrise struck out up the cañon.

For the first half-mile we followed a footpath which leads to the base of Snow Creek Falls. After crossing this tributary, there is no trail or track of any kind except an occasional bear trail. The next mile along the base of Mt. Watkins is savagely rough. Gigantic rock masses, fallen from Mt. Watkins and the Clouds Rest ridge, choke the cañon, while between these there is a dense growth of scrub oak timber, and higher up the slopes almost impenetrable brush. This, while probably the roughest part of the cañon, presents no element of danger whatever. We covered the distance in about an hour.

Toward the upper end the cañon bottom opens out into a small flat, fairly free of brush. Here, stretching directly across the cañon, is a continuous wall of cliffs from three to five hundred feet in height, through which the creek cuts in a vertical walled gorge. This is the entrance to the inner or box cañon of Tenaya Creek, the passage of which is one of the only two serious obstacles in the cañon. This transverse wall is pretty well broken to the east or right of the inner gorge, where brush and small trees grow in breaks of the rock. From below, it seemed possible to ascend this right wall to the brushy slope above, and thus avoid the inner gorge entirely. This might require considerable time, as the way looked by no means easy, and time would be needed to search out a passable route.

We decided to try the bottom of the inner gorge. Its ragged portal looked most inviting, and we certainly would not give it up without a trial. The creek was fortunately very low. We made our way into the gloomy chasm by walking most of the time in the water, for even at this season there was little space on the sides. So jumping from boulder to boulder, or wading, we progressed without trouble for perhaps a quarter of a mile. The gorge was very narrow, sometimes not over thirty feet wide. The first difficulty was encountered where the creek

LOOKING DOWN THROUGH LOWER ENTRANCE TO BOX CAÑON.
Photo by J. N. Le Conte.



THE FALL IN THE BOX CAÑON, SHOWING WEDGED BOULDER.
Photo by J. N. Le Conte.

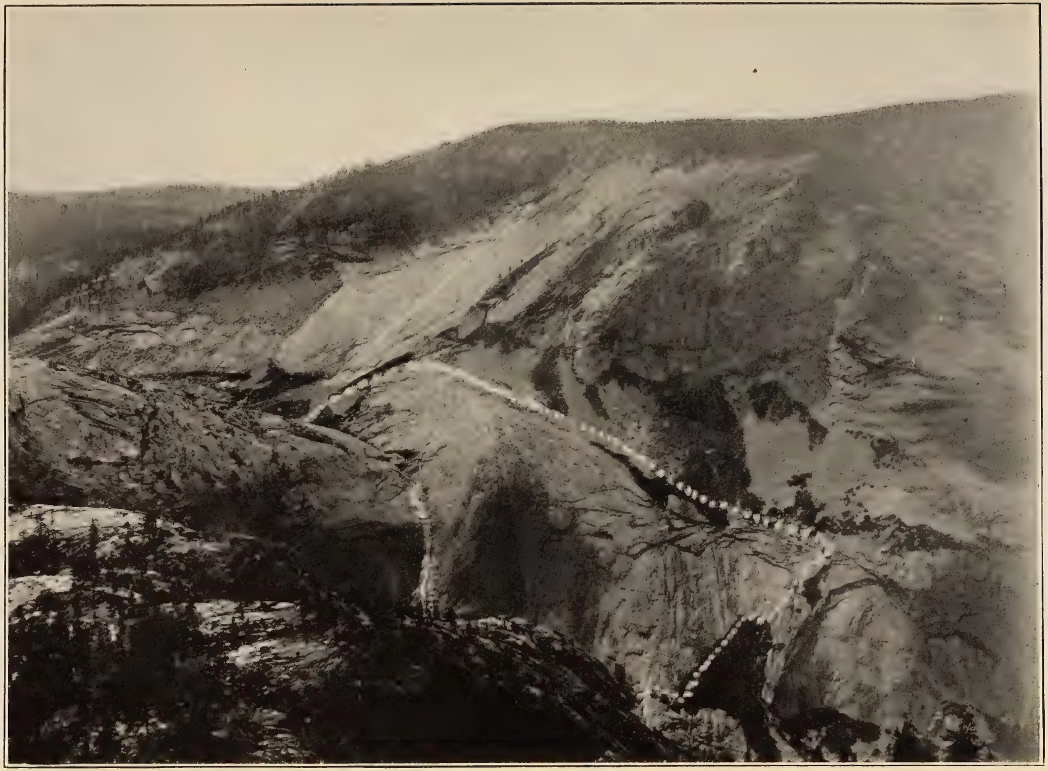
plunges over a fall, or rather over two falls, with a small pool about ten feet in diameter on a shelf between. Below the lower fall there is another and larger pool, into which the cliffs come down vertically on both sides. At first there seemed to be no possible way of passing it. For a long time we sat at its base and examined the front polished by falling water. Then we tried to climb out of the gorge on the west side, thinking to get around, and either descend into the gorge again or avoid it entirely. By the hardest kind of work, clinging to the cliffs and crawling through stubborn oak chaparral, we did succeed in reaching the top of the wall, only to find that it was impossible to proceed along the edge of the gorge. Discouraged, we returned to the creek, after wasting upwards of an hour's time, and several hundred feet of rough climbing. We again faced the fall, and after some more study, Hutchinson suggested that we might crawl along a sloping ledge along the left cliff a few feet above the lower pool, and then climb up beside the lower fall to the pool between the two. This we proceeded to do, and by careful crawling on hands and knees, the lower pool was passed, after which it was easy for us both to reach the foot of the upper fall. This latter could not be climbed on the left side, but by crossing the foaming stream at the lip of the lower fall, it was possible to continue up the east or right side, and thus the first difficulty was overcome.

The gorge now widened somewhat, and was choked with huge boulders, some so large as to make climbing around them troublesome. The eastern side now broke down, and a steep chute, the track of innumerable avalanches, broke through, offering a means of escape to the slopes below Clouds Rest. Just above this the gorge closed in again, and we entered a second portal, walking in the stream between vertical cliffs which must have been 250 feet high. The way was perfectly clear up to a second and higher fall, which completely blocked the cañon.

This fall was a most unusual one. An immense boulder, some thirty feet in diameter, had evidently rolled down one side of the main cañon, dropped into the inner gorge and plugged its bottom like a wedge. The creek had gradually filled in behind it, and now made a fine fall over it. At the base of the fall was a deep, clear pool, and glassy cliffs came down to the water's edge on both sides. It seemed impossible to reach the base of the fall without swimming the pool, which we would have done had there been any chance of getting up past the fall, but there did not appear to be any foothold on the polished rocks on either side, though with the aid of a rope it would have been possible to descend the east side. From the place where we stood we could look past the fall and up the gorge to where tall trees were growing, and the brushy slopes of the great outer cañon could be seen. I am quite sure that could we have passed the fall, a few hundred yards would have brought us to the end of the gorge.

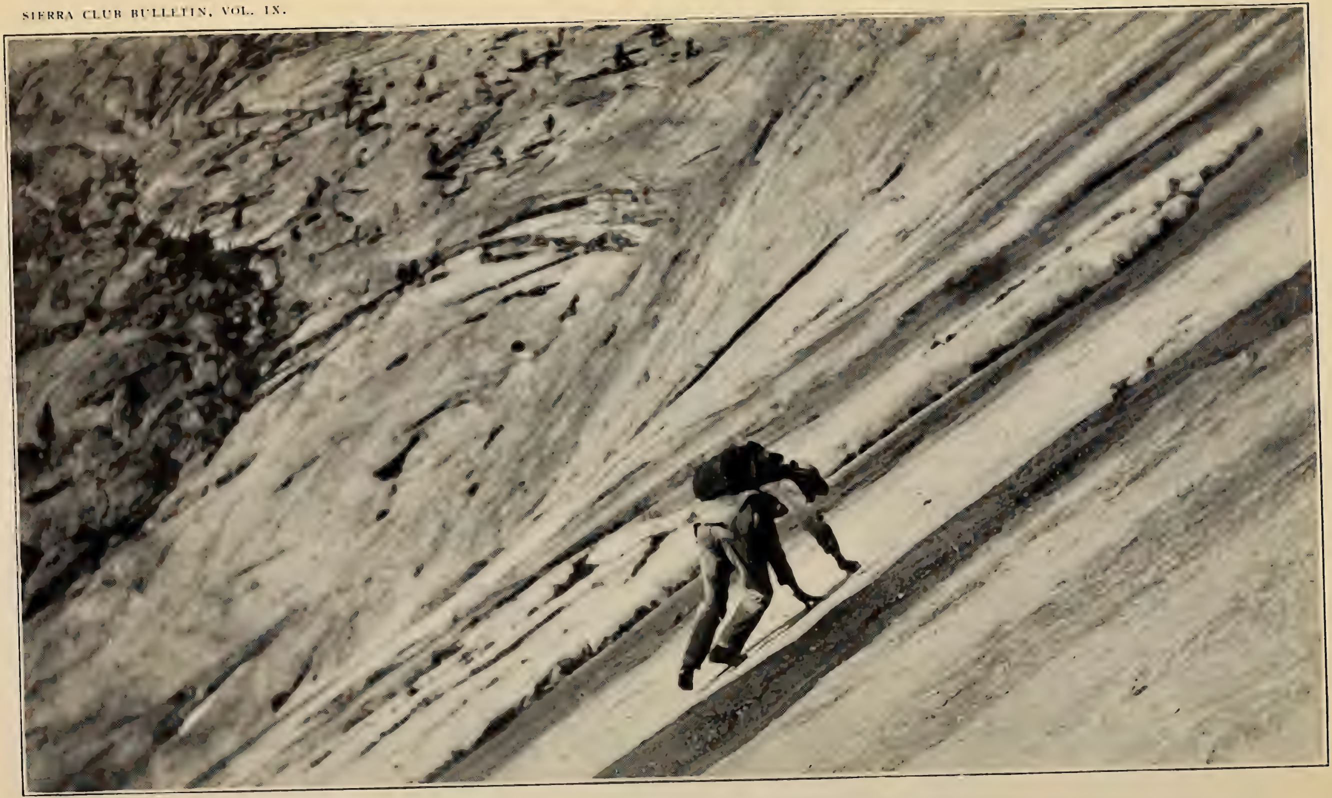
We did not waste much time here. There was no choice but to retreat to the chute below and climb out on the Clouds Rest slope. Here, just at the edge of the inner gorge, there is a large patch of brush crossed by avalanche chutes. Our plan was to follow along this, keeping close to the edge of the inner gorge, and thus reach its upper entrance, whence the portion above the last fall, or "jumping-off place," could be explored. This soon proved to be difficult, if not impossible. Smooth, polished slopes were encountered, along which one could not pass without danger of sliding off into the inner gorge. There was nothing to do but to climb higher and higher along the edge of the brush patch, and seek a passable ledge. Again and again we tried to work along the slope, but without success. Deer tracks still led upwards, and these we followed till finally the passage was found along a ledge about 600 feet up the slope of Clouds Rest. From this ledge a most stupendous view can be obtained. Upward, the barren rock, polished by centuries of sliding rocks and snow avalanches, reaches up 4,000 feet overhead, while below a shorter, though even more awful-looking slope drops off to the eaves of the inner chasm. Up and down the cañon the view is unobstructed, and is simply overpowering in its immensity.

We followed the ledge past the upper end of the inner gorge, now descending slightly along the slope. Deer tracks gave us confidence of final success, for undoubtedly this is one of the main passages used by wild animals. The ledge finally gave out on the slope about 500 feet above the talus,



UPPER END OF TENAYA CAÑON, SHOWING ROUTE PAST UPPER FALL.

Photo by J. H. Hutchinson.



ASCENDING THE EAST SLOPE OF TENAYA CAÑON.
Photo by J. N. Le Conte.

and some half-mile beyond the upper end of the gorge. Here was the first chance to use our sneakers, so hob-nailed boots were taken off, and by using hands and feet for friction duty, we worked carefully down to the talus at last.

The day was now so far advanced that we gave up our plan to visit the upper end of the gorge, and so pushed right on up the bed of the cañon, through brush and boulders, to the foot of the great fall which blocks the upper end, and there, under the shadow of a huge talus fragment, we stopped for lunch.

This fall, though some 500 feet high, is not vertical, but slides down the bare rock face of the eastern wall. Directly at the head of the main cañon is a rounded dome about 1,500 feet high, the fall being to the right of the dome. To the left of the dome a rugged gulch filled with brush furnishes a possible means of leaving the cañon, and reaching the Tenaya trail 2,000 feet above.

The passage of this fall is one of the most interesting problems of the trip. Corbett and Gibbs, with the aid of their rope, worked down the rock slope along the northern edge of the fall. This is certainly dangerous, and seems almost impossible to accomplish from below. Foster found a better way by ascending the Clouds Rest slope about a quarter of a mile below the fall and climbing over the low dome which guards it on the southeast, thence descending slightly to the valley at its head. This latter way we chose. At one place a long point of brush runs up the rock face. From the upper end of this the smooth front of the cañon wall must be negotiated, and this in some places approaches a forty-five-degree angle. After lunch we tackled it with our rubber-soled tennis shoes. The brush was so dense that at first we made better progress by walking on the rock alongside of it, getting assistance from the dense overhanging branches. At the upper end of the brush we had to cut loose, and walk straight up the steep rock. About 500 feet of this brought us to another patch of talus and brush, after reaching which there was no further trouble. This field of talus leads to the right of the small dome, and rises about 600 feet in vertical height. On the shoulder of the dome is a huge glacial erratic, from which a superb view can be obtained, both down the gigantic gorge into the far-away blue depths of Yosemite Valley and up the beautiful little tree-filled glacial basin above. After resting some time here, we descended into the glacial basin, and went on to its upper end for camp. We could have made it on to Lake Tenaya before dark, but found a good place in a grove of firs and decided to call it a day's work, and though we had come only about five and a half miles and risen 3,000 feet, it had taken us thirteen hours to do it. So we cooked supper, such as it was, and slept, or rather tried to sleep, "bedless" near a fire till daylight.

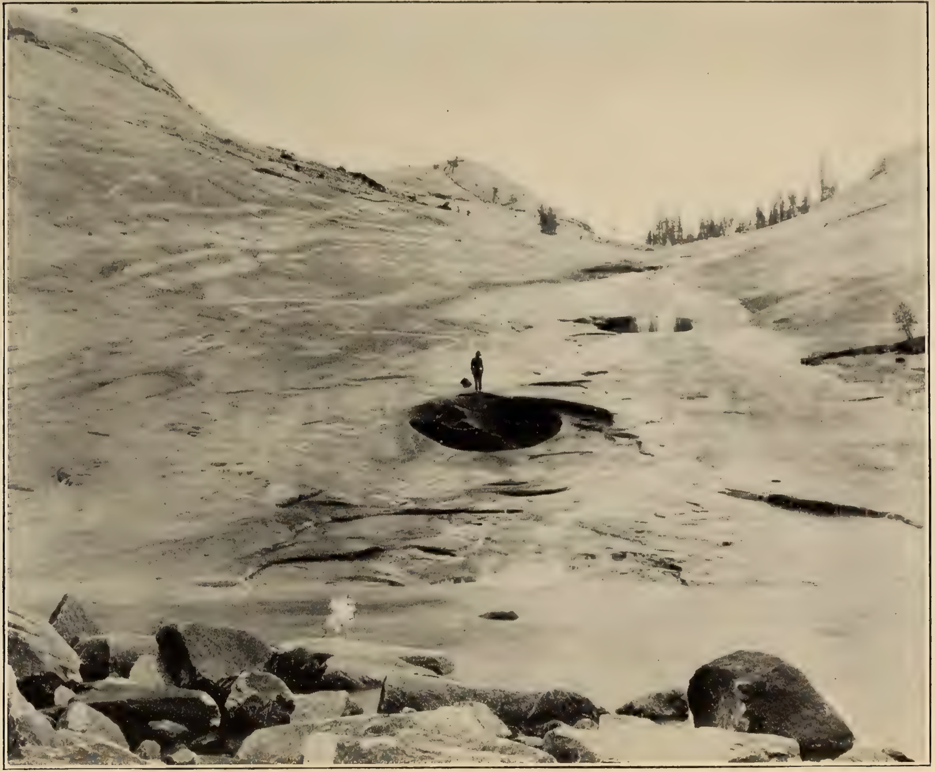
Above this little flat or basin there is no trouble whatever. At its upper end the stream comes down a polished rock slope at an angle of about twenty degrees for a third of a mile. There are several large pot-holes in the stream bed, some as much as fifteen feet in diameter. Above the head of this slide the stream flows through a shallow gulch, and soon the meadows below Lake Tenaya are encountered. Here we picked up the well-beaten trail at 6:30 A. M. and started back toward the Valley at once. At one place on the Mt. Watkins ridge the trail passes along the rim of the Tenaya Cañon, and one may see at a glance the whole upper end of the wonderful gorge. There directly below is the great fall at its head, the steep rock face up which one climbs to get around it, the wilderness of boulders and brush which chokes the bottom, the upper entrance to that savage inner gorge, and towering to the very sky directly across, is the unbroken 5,000-foot face of Clouds Rest. One can even distinguish the tiny ledge along which we had passed to get around the inner gorge. A mere thread it seems against that wall.

We hurried on down to Snow Creek, picked up our sleeping-bags where we had left them, and pulled into camp shortly after noon.

In regard to the cañon as a whole, it may be said that there are only two places at which special care is necessary—one the passage of the inner gorge and the other the passage of the fall at the head of the main cañon. At times of low water, at least with water as low as in July, 1912, I think there is no question but what one could go the entire distance down the

LOOKING DOWN FROM GROUSE VALLEY.

Photo by W. L. Huber.



POT HOLES IN CREEK BED, UPPER TENAYA CAÑON.
Photo by J. H. Hutchinson.

bottom of the gorge, using a rope to get over the one bad place at the upper fall. This, however, would involve swimming the pool at its foot. It seems very difficult to get up past this fall without the aid of a rope previously fixed from above, so even at times of low water the complete passage of the inner gorge in this direction is, to say the least, a difficult undertaking. Its upper end may be avoided by climbing out and along the ledge on the east, or, as Foster seems to have done, by passing around a ledge to the west. As I have said, the gorge can be avoided entirely by ascending the transverse parapet at the lower entrance and keeping on the slopes of Clouds Rest all the way. Needless to say, this is the only way at times of high water. The other difficulty at the great upper fall is really not a difficulty at all if one follows, as we did, Foster's route, and uses rubber-soled shoes. In passing through the cañon, unless one has been through it before, much time will be lost in hunting a route. Knowing exactly how to go, it would be easy to make it clear through from Snow Creek to Lake Tenaya in a day, and down in even less time.

After loafing about camp a few days, Hutchinson and I decided to take one more good climb before returning to civilization. We chose the ridge south of Half Dome as one which promised an interesting climb, as well as one which would furnish unique views of the Valley. On the morning of July 26th we got off at six o'clock, taking nothing but lunch. We went up the Vernal Fall trail to the place where the footpath to Sierra Point turns off, and then up this latter to the base of the western precipice of Grizzly Point. Here the trail turns to the right around the base of Grizzly Point toward the Merced Cañon. We worked off to the left and soon reached a rugged chimney or chute which divides Grizzly Point from the massive buttress of Half Dome. From the Valley floor, a thousand feet below, this looked easy to negotiate, but closer acquaintance proved this to be far from true. To go up this chute to the saddle north of Grizzly is no easy task. It is straight rock-climbing all the way. In one place we went up under a huge flat slab of granite for twenty feet. By zigzagging back and forth across the chute, we finally reached the saddle 2,000 feet above the Valley floor. To the south stood the spire of Grizzly Point, still 200 feet higher, so we made toward it, and reached the summit without further trouble. This last part is marked by monuments placed, I think, by Chas. A. Bailey about 1890. On the summit is a Sierra Club register box left by Mr. Bailey about 1895, but the cover was gone and no record or paper was in it.

We descended again to the saddle in the main ridge, and started north along the great spur, or "hog-back," which joins Half Dome. The traveling was easy enough, only a long pull through sandy soil and scattered brush. A magnificent panorama opened out from this unusual point of view, and it became finer and finer as we approached the gigantic wall of Half Dome. Just where the ridge abuts against the vertical face of the Dome, its eastern side is formed by a long, smooth slope of granite, the western being a sheer precipice 3,500 feet high. I had often looked at this from Glacier Point, and longed to crawl up this clean slope, and, holding on to the sharply fractured edge, look down upon Mirror Lake almost vertically below. As we approached this granite slope, it proved to be too steep to crawl up, but by working along a ledge or crack for nearly a hundred yards we came to a place where our hopes were realized. We crawled up the rock, grasped the thin edge, and looked down upon the cañon two thirds of a mile below.

Never have I seen such a frightful precipice in all my experience. The edge which my hands grasped was not more than a few inches thick, and below there was nothing, absolutely nothing, but air down for 3,500 feet. Even the upper part of the cliff could not be seen, for evidently the rock upon which we were lying overhung the abyss. The sight was too airy to be endured very long, so we crawled back and along the ridge farther, right up against the side of the great Dome. Here, looking back, we could see in profile the rock upon which we had been lying. It was not more than a foot or two thick, and overhung six or seven feet. To anyone who wants the experience of looking over a first-class precipice, without being caged in by gas-pipe railings, I can recommend this place above all others.

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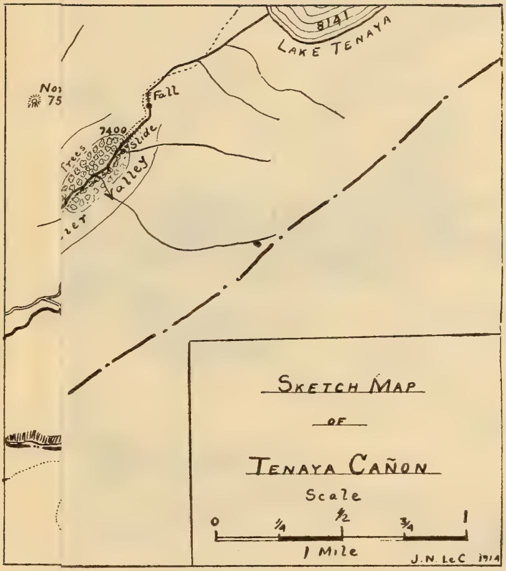
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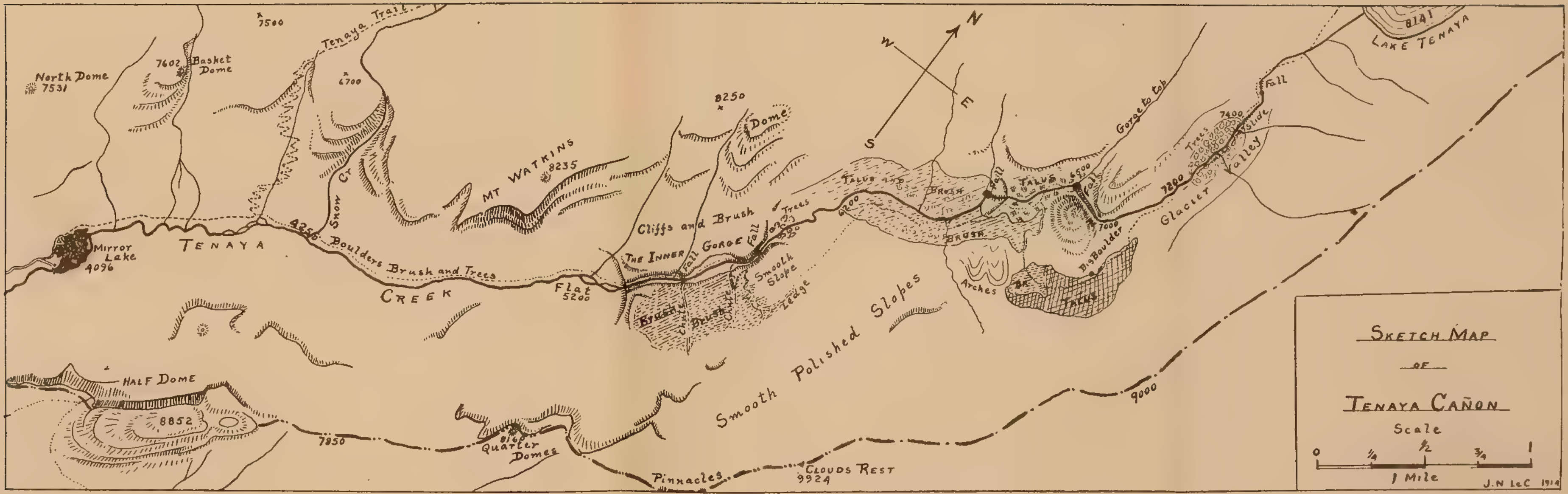
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1 Mile
J. N. LeC. 1914

The view up Tenaya Cañon was very impressive also, though partly obstructed by the northern spur of the Dome, which throws a point out toward the west. The Dome itself was simply overpowering in its grandeur. We were level with a point about half-way up the great front precipice; a thousand feet of it rose above and a thousand feet were below, down to the ragged rock slope which drops off still three thousand more to the lake. Off to the east we could look over the domes of the Little Yosemite and toward the head of the Merced, while far below were the Cap of Liberty and Mt. Broderick.

In returning, we decided to go around the eastern base of the Half Dome, reach the Little Yosemite, and take the Vernal Fall trail back to camp. This seemed easy, but, like the chute at Grizzly Point, disappointed us. A great portion of the slope below the Dome on the southeast is covered with dense chaparral. This would not be so bad if it were not for smooth, impassable portions of the Dome itself, which are formed of thick slabs overlapping like giant shingles and which continually bar the way. After hours of fighting brush, crawling around smooth slopes, and climbing down rock faces, we came at last to Lost Lake on the northern side of the Cap of Liberty. This lake is a stagnant pool about a quarter of a mile long, covered with pond lilies. As we approached the Cap of Liberty, the narrow gorge between it and Mt. Broderick attracted our attention, so without hesitation we started down it. The upper portion is filled with huge talus, rough but not difficult. Then comes a remarkable meadow, several hundred feet long, filling the entire gorge from wall to wall, here in some places not thirty feet apart. The pure white granite cliffs come vertically down into the meadow grass without as much as a pebble in the corner. Below this the little stream plunges down into a rugged boulder-filled gorge. Some care has to be taken in getting down over the rock faces polished by running water. It ends near the site of the old Snow Hotel, and at 4:30 we reached the bridge over the Diamond Cascade, and were headed for home and a solid dinner.

These are only two of the many interesting and unusual climbs about Yosemite, but there are many others which we have "staked out," and hope to investigate in the near future.

STUDYING THE YOSEMITE PROBLEM*

By F. E. Matthes, United States Geological Survey

Some of the readers of this magazine, upon learning that the geology of the Yosemite region has been given a careful investigation by a party of government scientists during the past summer, will probably exclaim: "What, again? Has not the Yosemite region been studied by geologists several times before, and do we not know all there is to know about it by this time?"

Indeed, we do not know all there is to know about it. Last summer's investigations have revealed—if nothing else—how imperfect still is our understanding of the much-admired Yosemite Valley and how great the difficulty of penetrating deeper into its mysteries. The Yosemite problem has been studied more than once in the past; it is being studied now, and it undoubtedly will bear further study in the future.

But in the meanwhile headway is constantly being made towards its solution. Each new investigator comes to the task better prepared than his predecessors—better prepared because in the possession of the cumulated knowledge, so to speak, of those who went before, and, in addition, of that advanced knowledge that is his by virtue of the general progress made by science. All these advantages last year's party enjoyed also, but besides, there was a feature of its equipment that seemed to give it special promise of success, namely the possession of an accurate large-scale map of the Yosemite region.

The unraveling of a complex problem such as that of the Yosemite Valley naturally demands the very detailed, concentrated study of certain localities, and work of that sort cannot well be executed without the aid of a topographic map of commensurate detailedness. Until a few years ago, when the United States Geological Survey published its "Map of the Yosemite Valley" on a special scale of 2,000 feet to the inch (a scale about five times as large as that used for the mapping of most of the Sierra country), such cartographic material was not available. In general it may be said that what distinguished last summer's work from the earlier investigations was its exceedingly detailed nature. For the most part it was restricted to a small area—the Yosemite region properly speaking—and it was extended to outlying districts in the High Sierra only in so far as the character of the Yosemite problem necessitated.

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But why, the reader may ask, was this research into the Yosemite problem undertaken at this particular time? Much has been written, as we all know, upon the subject of the probable origin of the Yosemite Valley. The different views advanced, however, are so widely at variance with each other, that the intelligently interested layman who would endeavor to inform himself as to the real nature of his cherished Yosemite is apt to give up the attempt in despair. If anything, the situation is worse to-day than it ever was. Formerly one had the choice of only two explanations and could with some readiness "choose sides." In fact, it was quite the fashion then to do so. One was either a Whitney-man, committed to the dropped-block hypothesis, or else one was a firm believer in the potency of ice erosion. But the advent of successive new explanations, of late years, has greatly complicated things, so that now the layman, thoroughly bewildered, scarcely knows to which authority he had best pin his faith. In the meantime the different guide books on the market, with the best intentions in the world, are each espousing a different cause, and thus keep the pot of confusion boiling.

Surely it will be agreed that the time has come to ameliorate this state of things. This is what was thought and said in Washington last spring. In the end, does not the Government owe it to the intelligent citizens of this country to make an effort to enlighten them in a matter of this sort, to furnish them with reliable authoritative information? The year of the San Francisco exposition, which doubtless will see an unprecedented influx of tourists into Yosemite Valley, naturally suggested itself as a particularly opportune time to effectively disseminate information among the public; and accordingly it was decided to dispatch the field parties at once in order that the necessary data might be collected and worked up in ample time.

As to the character of the publication, may there be no misapprehension: it is not to be technical or "dry," as scientific writings are often accused of being by the public; an effort will be made to present the rather complicated story of the Yosemite in simple, readable language, devoid as far as practicable of scientific phraseology and supplemented by numerous illustrations. It is intended that the account shall be attractive to the layman, that its pages shall speak to him, as it were, instead of treating him in that coldly informational, impersonal way that sometimes seems to forget that people have souls as well as intellects.

The party that was sent out by the United States Geological Survey last year was composed of two geologists each of which was to pursue a special line of study. Mr. F. C. Calkins, a geologist of ripe experience (and a graduate of the University of California) undertook the petrographic and structural examinations, that is to say, the study of the characters and relations of the different kinds of rock occurring in the area; while the writer was charged with the physiographic phases of the problem, that is, with the determination of the mode of evolution of the features of the landscape. Both men were to cover the same territory, their work being mutually supplementary.

Perhaps the reasons for this division of labor will not be immediately apparent to the reader; it may therefore be well, before entering upon an account of the manner in which the work was executed, first to state what is the nature of the Yosemite problem.

Broadly speaking, it involves two questions: the more specific one of the evolution of the Yosemite Valley, and the more general one of the geologic history of the Sierra Nevada, the mountain range in which the Yosemite lies hewn. The latter history is a complex affair that takes one back through several turbulent geologic periods, to times when great masses of molten rock pressed up from beneath, invaded the surface rocks and, possibly finding vent in orifices here and there, issued forth in the form of lava flows; and to a still earlier date when the area now occupied by the Sierra Nevada was not even land, but was covered by the sea, and received vast deposits of sediment from the continent to the east, the sediments that later became the surface rocks. To decipher the record of these multifarious events one must patiently study the different rock species of the Sierra and work out the relations they bear to one another.

The evolution of the Yosemite Valley, on the other hand, is from the geologist's point of view a relatively modern and brief episode. The valley is strictly an erosional feature (Whitney's fault block hypothesis has been disposed of), and like all the cañons and valleys about us belongs to the landscape of the present, that is, of the last of many time divisions of the earth's geologic history—the one commonly referred to as the Quaternary. The Sierra Nevada itself did not attain its present height until the close of Tertiary time (at the end of widespread crustal upwarpings and subsidences, it remained standing in the form of a huge crust block, upheaved at the eastern edge and tilted to westward); the series of deep cañons carved in its long western slope are therefore to be regarded as dating essentially from the time of these upheavals. The cañon of the Merced River, of which the Yosemite forms a section, is one member of this series of cañons.

The study of the evolution of the Yosemite Valley, it will be clear from this, amounts virtually to a study of the erosional events of Quaternary time and of the successive changes in the landscape which these events brought about. Now the general character of these events is already fairly well known through research in other parts of the world. It is definitely established, for one thing, that it was during Quarternary times that occurred the great ice invasions which affected the northern portion of this continent and of Europe. In those days the Sierra Nevada was also covered with extensive ice fields, as has been recognized by many observers; in fact, its upper portions constituted a separate center of snow accumulation whence long tongue-like glaciers flowed down through the principal cañons and valleys. Whether the ice reached the Yosemite Valley or not, it will be remembered, was once a hotly debated question. Unfortunately the exact extent of the glaciers had not been traced out and the debaters had to rely for the most part on the more obvious evidences of ice erosion which one may readily recognize at a glance. In the High Sierra such evidences are conspicuous, indeed they fairly leap to the eye; but lower down on the flanks of the range they become progressively dimmer until at last they all but fade away. The Yosemite region, as fate would have it, lies in this very zone of increasing obscurity. At its head glacial signs are plain enough, but toward its lower end they become so faint as to be easily overlooked. No wonder that opinions have varied widely regarding the glacial history of the valley and still more so about the extent to which it has been remodeled by the ice.

Naturally it seemed of prime importance to the investigators last year to make an effort to settle this question of ice erosion in the Yosemite Valley, to establish definitely how far the ice advanced and, if possible, how much excavational work it achieved. The physiographer of the party accordingly devoted the better part of his time to a search for ice signs.

The manner in which he went about it may be of some interest. Other investigators have relied in no small measure upon topographic indices for the determination of the limits of the ice as well as for a measure of its erosional work. The sculpture of the Yosemite region, however, is notably erratic and as an index of ice erosion quite deceptive (for reasons that will become apparent later); besides it is to be borne in mind that there was not only one ice age, as it is popularly termed, but several ice epochs, the glaciers of which differed greatly in extent and eroding power. The matter is therefore much more complicated than at first it seems. For these reasons the writer deemed it wiser to regard the topography not as a source of information but as one of the mysteries to be explained. His plan was first to trace out the glacial moraines, that is, the ridges of ice-transported débris that accumulated along the margins and at the fronts of the ancient glaciers. Previous visits had shown him that deposits of this sort are abundant and fairly well preserved in many parts of the Yosemite region. By mapping them systematically on the large-scale map of the valley, he hoped to be able to establish the exact outlines of the ice streams, and thus to lay a sound foundation for further glacial research.

A long and laborious task this mapping of moraines proved to be. For the ice of each period advanced and retreated not in simple, uninterrupted cycles, but with many minor fluctuations. After the glaciers had reached their maximum extent and began to recede, they made repeated feeble re-advances, pulsations, as it were, of progressively diminishing strength, each of which left a cordon of moraines to witness its magnitude. As a consequence there are now several series of moraines, both across the valley floors and along the mountain slopes. The former, or terminal moraines, record the oscillations of the glacier ends, while the latter, or lateral moraines, mark the width of the ice streams and their level at each stage.

The actual mapping of the moraines was accomplished throughout by pacing surveys along their crests, directions being taken by hand compass and altitudes by aneroid. Seldom was it practicable to sketch the moraines from an elevated vantage point, for, composed as they are of disintegrating rock débris, moraines inherently offer good ground for vegetation and are almost everywhere ensconced in forest or in chaparral. This fact in itself, as one may imagine, contributed not a little to the slowness of the mapper's task. The daily routine consisted of tramping through the woods or fighting through the brush, always counting paces—for the distances must be faithfully measured, no matter how bad the going, in order that the moraine crests might be correctly plotted on the map. Several months were devoted to this work, it being stopped only by the advent of the snow early in December.

The results obtained were, to say the least gratifying. As the moraine map grew it began to tell a story—a story surprisingly vivid and complete in details, considering the elusive character of the facts with which it dealt; a story, too, that rather insisted on shaping itself and occasionally took turns unexpected by the investigator. Indeed the writer will frankly confess that the glacial history of the Yosemite country turned out in many respects different from what he had anticipated,—different, too, from the various interpretations given by those who have written about the ancient Sierra glaciers. Early in the investigation the moraine map began to set things right: many long-cherished notions its lines began to substantiate and many long-taught theories they proceeded to disrupt. New revelations presented themselves from day to day. Here were moraines plastered upon the landscape in a manner suggesting that the ice had little or no eroding power, while yonder loomed sharply truncated spurs of solid rock, proclaiming ice erosion of the intensest sort. Here was a moraine ascending hundreds of feet in downstream direction, while in another place the ice had passed by a gap considerably lower than its surface without taking advantage of the outlet. One glacier after straddling a ridge for miles had split just before reaching a saddle. Why did it balk at the inviting hollow? Surely these glaciers behaved in unexpected ways.

The interest continued until the very end. The search had been organized in the upper country where ice signs are relatively plentiful, and was carried thence to progressively lower levels. Where did the glaciers end? What was the lowest point on the Sierra flank reached by them? Is Muir right in his assertion that the ice enveloped the entire range down to its foot? Such were the questions that urged themselves upon the investigator.

It is scarcely desired here to go into particulars,—it would not be meet thus to anticipate the government's publication, but this much may be stated with propriety: the ice of the earlier epochs was very extensive and descended far beyond the Yosemite, yet it failed to reach the Sierra foot by many miles. The increase of temperature from the 5,000-foot level down to the foothills must have been almost as pronounced in glacial times as it is now. The vast ice fields of the upper Sierra contracted downward into individual ice tongues, and these again, as they protruded below the zone of glacial climate, diminished in strength with great rapidity, in spite of the protection from the sun afforded them by their profound, rock-walled channels. As a consequence the Sierra glaciers came rather abruptly to an end. The evidence of their termination, it should be said, is unmistakable, if faint and hidden; one must be willing to grope through the manzanita to secure it.

Reference has been made to "earlier glacial epochs." It may be asked, how were the records of the different epochs distinguished from each other? Chiefly by the degree of disintegration of their constituent materials. The moraines of the last epoch are relatively fresh-looking, at least sufficiently well preserved to retain their characteristic ridge form. Sharp-crested as a rule, they have the appearance in many places of railroad embankments following a definite alignment of straight stretches and smooth curves, but left in a rough, unfinished state, with large boulders perching upon them or protruding from their sides. A large proportion of the rock fragments, cobbles and boulders in them are but little weathered and retain the smooth surfaces characteristic of ice wear. The older moraines, on the other hand, have for the most part lost their original sharp-crested form, and have been converted to shapeless masses covered with residual soil and interrupted in many places by little valleys or ravines. Only occasional large boulders of resistant rock survive upon them, and even these have lost most of their ice-worn surface and are surrounded by fragments scaled off from their sides. Dim moraines, such as these, it will readily be understood, can scarcely be traced by their configuration or alignment. The only reliable method is to identify them by their rock materials. Moraines as a rule contain mixtures of different kinds of rock samples, as it were, of all the rock formations over which the ice has passed. Some of these rock types are apt to be distinctive and readily recognized; for the glacialist they are truly diagnostic. When he encounters one of them he knows at once he is dealing with indubitable moraine. But in order to be able thus to identify obscure glacial deposits by the rocks contained in them, it clearly behooves the glacialist to be thoroughly familiar with the rock formations occurring in each glacier basin. It was in this connection that the simultaneous carrying on of petrographic and physiographic studies proved particularly advantageous. It was the petrographer's duty to study each separate rock formation and to show the area occupied by it on the map. He was therefore often in a position to tell the physiographer, who perhaps was working farther down stream, what manner of rocks might be expected in the moraines and what particular branch of the glacier had transported them. On the other hand, it sometimes happened that the physiographer, upon entering a new district, would notice in the moraines fragments of a new rock type, and thus was able to predict the existence of a certain formation in the region whence the ice had come. The two men thus carried on team work of a mutually profitable sort.

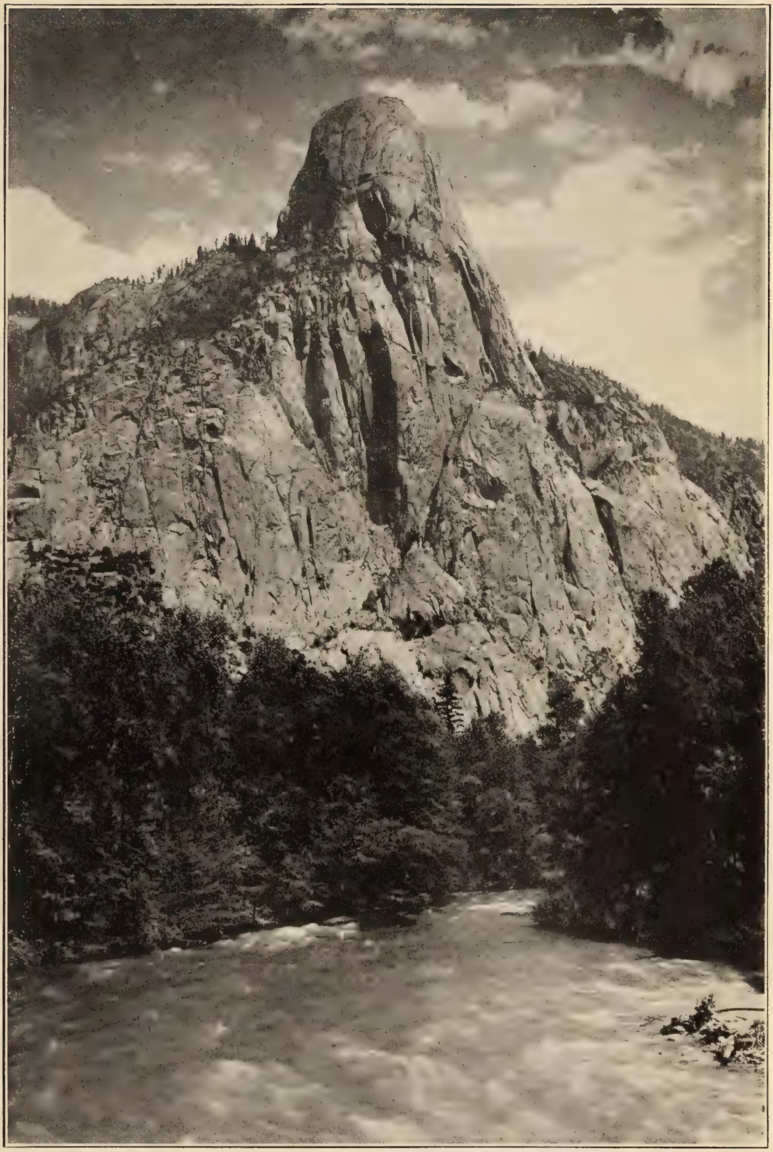
That the identification of the disintegrated older moraines was not always an easy matter, may readily be surmised. The rocks of the Yosemite region unfortunately are almost exclusively granites, popularly speaking, that is, crystalline igneous rocks closely allied to each other and not greatly differing in general aspect, at least not to the untrained eye. When thoroughly weathered these rocks look much alike. As a consequence the physiographer was at times obliged to stop his pacing and spend an hour with his geological hammer breaking pebbles and chipping corners off boulders in order to discover one of the desired diagnostic types. Such work, however, although it consumed much time, usually yielded gratifying results. An afternoon of rock breaking on Glacier Point established once and for all the fact that that promonotory has been overwhelmed by the ice of an early epoch—an epoch so early that except for some boulders and cobbles encased in residual soil in a protecting hollow, all sign of the ice flood has long since disappeared. Yet the evidence is indisputable, many of the cobbles unearthed and broken proving to belong to rock types from the Little Yosemite region and foreign to the Glacier Point neighborhood. It may be said in passing that the basin-shaped hollows in the bare rock surfaces of Glacier Point are not pot-holes produced by streams under the ice, but are merely the result of rapid disintegration of the rock in particularly vulnerable spots. It is certain that the ice did not leave these depressions, for there is ample evidence in various localities showing that since the early ice flood which visited Glacier Point the surface of the rock has been removed to the depth of several feet from bare, unprotected places of this sort by the slow processes of disintegration.

One thing must have become patent from the foregoing pages, namely that the study of a glacial valley such as the Yosemite can scarcely hope to be exhaustive unless it be extended to the higher regions that were the sources of the ice. The need of an acquaintance with these regions soon impressed itself upon the investigators and accordingly they deployed over the entire headwaters country of the Merced River as well as over the basin of the Tuolumne. The latter territory proved of unusual interest, for it evidently constituted the great central névé field of the middle Sierra and poured its ice not only down the Grand Cañon of the Tuolumne, but across several passes into the Tenaya and Merced basins, as well as down the cañons of the east facing Sierra front. The height attained by the ice and the extent of its various diversions during each separate epoch were ascertained with considerable care, while at the same time the rock types present in the area and transported from it by the ice were examined in some detail. Late in September the investigators returned to the Yosemite Valley, and resumed their labors there enriched with an insight into the character of the region that was the birthplace of the Yosemite glaciers.

A visit was also made to the Hetch Hetchy Valley, the Grand Cañon of the Tuolumne and Lake Eleanor. Some valuable lessons in the glacial history of the Sierra Nevada were learnt on that trip, not the least valuable of which was derived from the fact that the ice stream that traversed the Hetch Hetchy Valley was vastly superior in volume and in length to the Yosemite Glacier. The opinion has been advanced that the lesser dimensions of the Hetch Hetchy Valley bespeak erosion by a less powerful ice stream than that which enlarged the Yosemite Valley. This is utterly refuted by the morainal record. The Hetch Hetchy Valley, it appears, was fairly smothered under ice at times when the Yosemite was but half filled. That it was not enlarged proportionately to the volume of its glacier is to be ascribed primarily to the exceeding resistance of its massive rocks. The lesson is that in a region of massive granites such as the Sierra Nevada, the size of a valley cannot safely be taken as an index of the magnitude of the glacier that passed through it.

This brings us to that part of the investigation, the aim of which was to determine the amount of erosional work performed by the ice. On a previous page, it will be remembered, the statement was made that the sculpture of the Yosemite Valley is erratic and, as an index to ice erosion, most deceiving. The explanation lies, for the Yosemite as it does for the Hetch Hetchy, in the structural characteristics of the country rock. The interpretation of these characteristics given in the recent booklet on the origin of the Yosemite Valley, published by the Department of the Interior, the writer is happy to state, was verified and confirmed by the structural studies of last summer. As was pointed out in that booklet, the granites of the Yosemite region are peculiar in that they are not everywhere traversed by natural partings or "joints." Large masses of them, some half a mile or more in extent, have remained undivided, absolutely solid, although in other places the same rock may be fissured at intervals of only a few feet. That these extreme variations in structure must have greatly affected the eroding efficiency of the ice, will readily be understood. While the glaciers might work to advantage in rocks divided into small joint blocks, they were relatively powerless when dealing with massive granite. The latter they could reduce only by superficial abrasion, a slow process the efficiency of which has been much overestimated. As a result, the ice-carved topography of the Yosemite country is a singularly varied one, well developed, typical glacial forms alternating with others not suggestive of ice work at all.

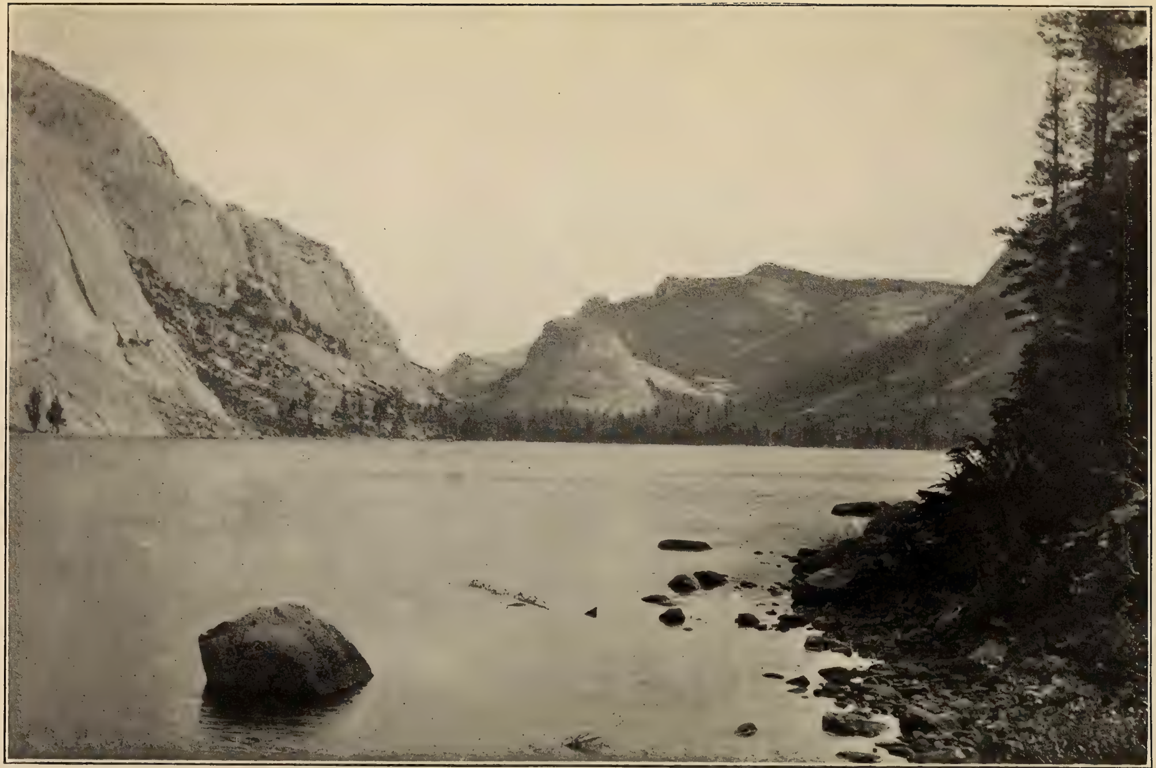
On the whole, it may be said that this phase of the Yosemite problem has remained the most misunderstood. Former observers have not always made sufficient allowance for the exceptional nature of the granites of the Sierra. Perhaps they had in mind the work of glaciers in regions of more normally jointed rocks and thus were misled in assigning too great erosional achievements to the ice streams of the Yosemite region. The main lessons learned last summer in this regard are that except in certain restricted localities, such as the Yosemite Valley proper, the rock character precluded extensive remodeling by the ice, and that as a consequence the landscape, although bearing the unmistakable stamp of ice



TEHIPITE DOME, 3,600 FEET.

Photo by Louis Jensen, Shaver.

Print by C. R. Clendenning, Big Creek.



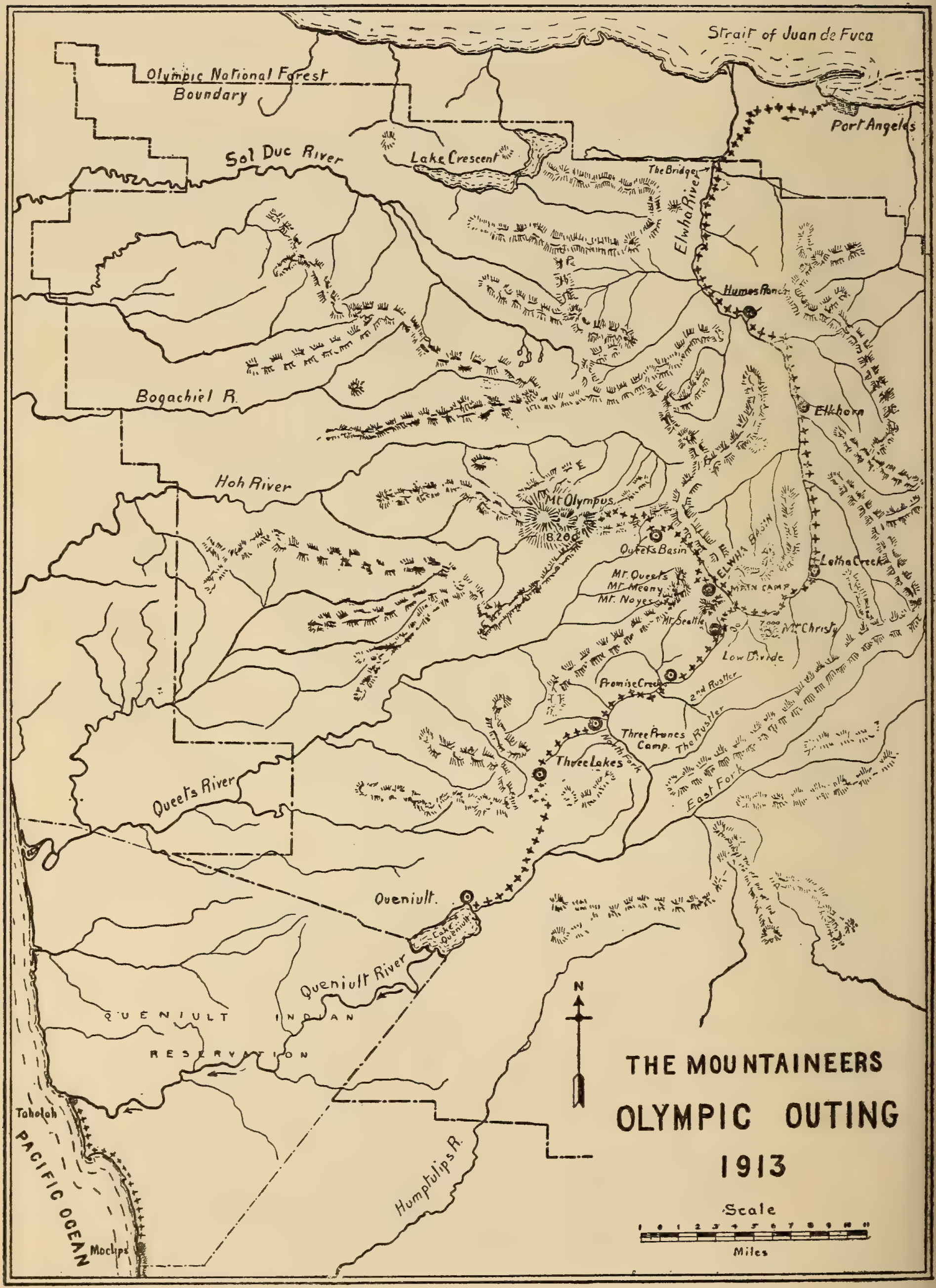
LAKE TENAYA, SHOWING DOMES GLACIATED BY OVERFLOW FROM TUOLUMNE GLACIER.

Photo by F. I. Wheat.

work, still retains very largely the features given it by normal weather-and-stream erosion prior to the advent of the ice.

But one other line of studies will here be mentioned, namely that of the evolution of the remarkable cliffs and domes of the Yosemite landscape. That the domes have acquired their rounded forms through the progressive casting off of shells —through exfoliation, as it is termed,—has long since been recognized. That a similar process may be at work on the faces of many of the great mural cliffs has been surmised before and at least tentatively announced. It seemed desirable to verify the correctness of that interpretation, and accordingly many observations were made on the cliffs and the materials composing them. In the main it was found that exfoliation is rather more general in the Yosemite region than has commonly been supposed, and that many of the slabs and sheets clinging to cliff faces are really products of exfoliation, that is, of external influences, instead of being remnants of structures originally existing in the granite. It would appear therefore that in the Yosemite region massive rock prevails to a far greater degree than at first sight seems to be the case. And this fact must necessarily influence our views as to the amount of excavating to be accredited to the ice: in materials so unfavorable as massive granite it seems unlikely that glaciers would have been able to accomplish any great results.

In conclusion it should be said that last summer's investigations, elaborate though they were, are not to be considered exhaustive nor at all complete. Some portions of the Yosemite district were accorded but little more than a cursory glance and will require more thorough study. Again, it seems important that the principal conclusions reached be tested in other parts of the Sierra Nevada, and that the evolution of the Yosemite Valley be compared with that of each of the other Yosemites. It is sincerely hoped that this may be accomplished during the present year.


Strait of Juan de Fuca
Olympic National Forest Boundary
Port Angeles
Sol Duc River
Lake Crescent
The Bridge
Elwha River
Humes Ranch
Bogachiel R.
Elkhorn
Hoh River
Mt Olympus
8,200
Queets Basin
ELWHA BASIN
Lotha Creek
Mt. Queets
Mt. Meany
Mt. Noyes
MAIN CAMP
Mt. Seattle
7,000
Mt. Christy
Low Divide
Promise Creek
2nd Rustler
Three Prongs Camp
The Rustler
Three Lakes
North Fork
East Fork
Queets River
Queniult.
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Taholah
PACIFIC OCEAN
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N
THE MOUNTAINEERS
OLYMPIC OUTING
1913
Scale
Miles

By courtesy of The Mountaineers.

THROUGH THE OLYMPICS WITH THE MOUNTAINEERS

By Marion Randall Parsons

The Olympic Range occupies a peninsula, about eighty miles wide, which separates Puget Sound from the Pacific, and rises abruptly from the ocean to an altitude of 8,200 feet. Deep glacial cañons cut the chain into a series of high, serrated ridges that culminate near Mt. Olympus in several interesting groups of precipitous peaks. Like the Cascade Range, the Olympics have three characteristic zones: dense forests, reaching from sea-level to an altitude of about 3,500 feet; open park country, rising nearly a thousand feet higher; third and highest, the alpine region, where bold peaks and grandly sculptured ranges of dark metamorphic rock are clothed in perpetual snow. Here living glaciers, some of them five miles long, are still at work carving and beautifying the range. The cañons form the most practicable avenues of approach to the high mountains, for the forested areas are not only very steep and rugged, but, owing to the heavy rainfall, are clothed in an almost impenetrable jungle of rank vegetation. The Olympic National Monument, established by President Roosevelt in 1909, preserves the region as one of the nation's playgrounds.

Announcement of an outing through the heart of these little-known mountains brought Appalachian, Mazama and Sierra recruits to join the 1913 outing of the Seattle Mountaineers. The projected trip was a pioneering undertaking, for few parties had hitherto even reached Mt. Olympus and none had been known to cross the range and follow down its western flanks to the Pacific. Much preliminary work was therefore necessary to ensure the success of the trip. On the west a trail from Lake Queniult to the Low Divide was located and built. On the east the rough trail up the Elwha River was rebuilt and a new trail put through from the Elwha to the Low Divide, where the two ends were joined only three days before we reached that point.

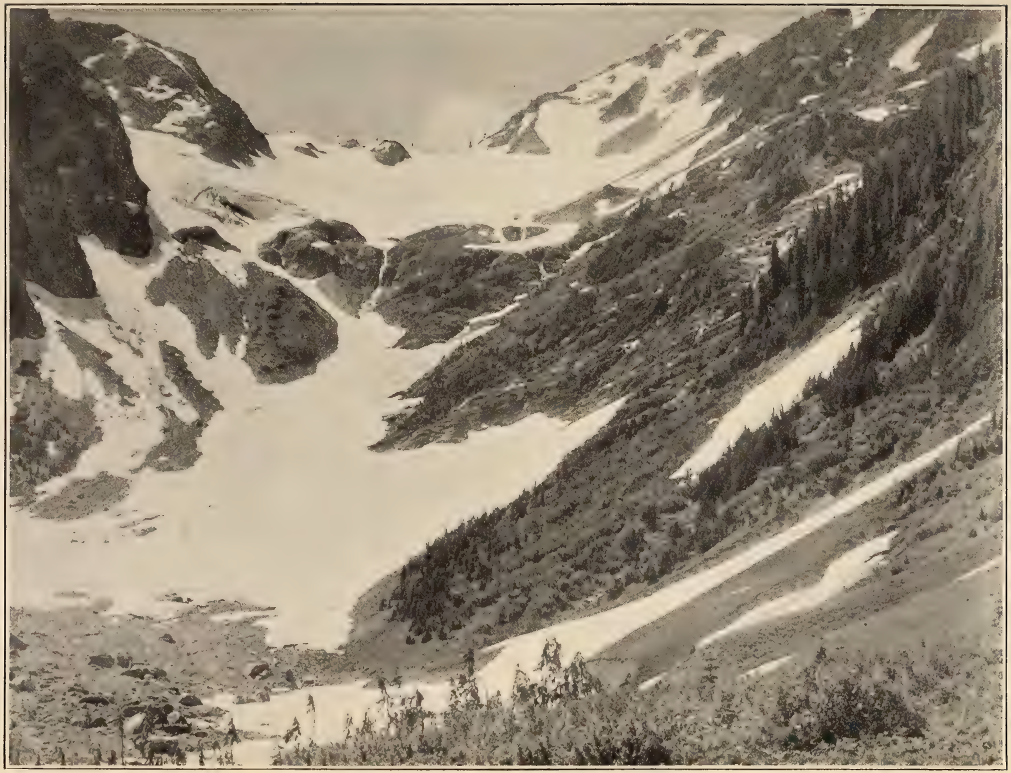
The outing party, numbering one hundred, assembled at Seattle aboard the steamer "Sol Duc" the evening of August

1st. All night we traveled up Puget Sound and early morning found us breakfasting in Port Angeles, half-way down the Straits of Juan de Fuca. Automobiles, generously furnished by citizens of that historic town, carried us to Elwha Bridge, where the trail began.

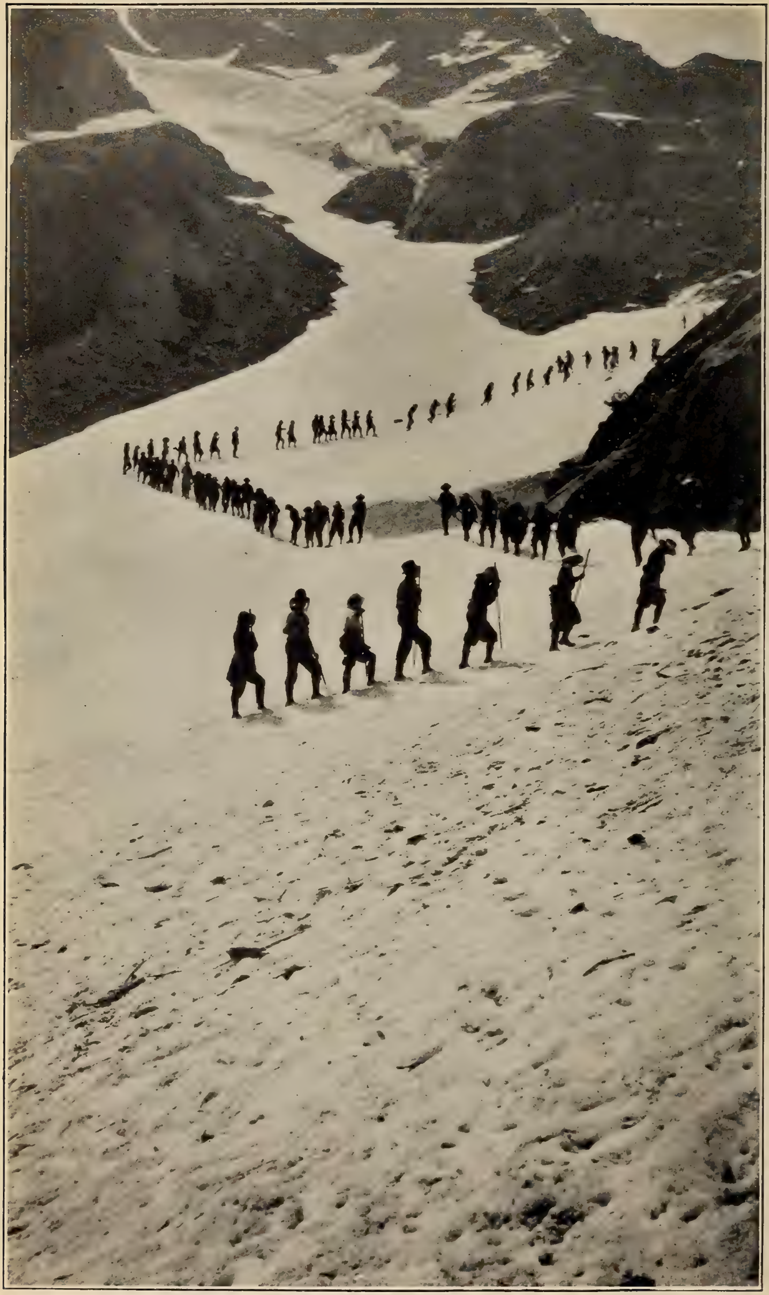
Three days of forest travel merge together in memory like one long day of many delights. From bottomlands where homesteads nestled; through hot, dusty burns whose devastation was partly hidden in rosy masses of epilobium; along ridges white with the mist-like bloom of spiræa; through deep, silent forests, moss-hung, and carpeted with ferns and delicate flowers; through sun-dappled groves of alders, and up among higher hills, where far above us rose green strips of parkland, we journeyed. Each camp brought closer the day that dawns early in every outing, when, with strange faces grown familiar and old companionships renewed, the haphazard acquaintanceship of fellow travelers becomes the friendly fellowship of the open trail.

The fourth day we started together in line to make three log crossings of the turbulent Elwha. Life-lines were stretched to give confidence to the timid, and strong men were stationed on the banks below, ready to rescue any luckless mountaineer who should slip. No such disaster occurring, however, the company was disbanded at the last crossing and each was free to take his own time into camp.

The forest was glorious that morning. Amabilis firs, hemlocks *(Tsuga heterophylla)*, Douglas fir *(Pseudotsuga taxifolia)*, western red cedars *(Thuja plicata)*, and, more rarely, mountain pines *(P. monticola)*, clothed mountain flank and cañon floor, their dense canopy of interlacing branches shutting out sun and wind alike. On either side of the trail the ground was hidden by growing things—fern fronds, creeping raspberries, dwarf dogwood, starry white clintonia, and linnæa, loveliest of forest blossoms, with glossy leaflets and delicate, faintly flushed twin bells. Mosses and ferns, huckleberries and seedling conifers likewise took possession of each fallen tree, making its death but a rung in the ladder for young lives crowding upward. But in spite of such exuberance of life it seemed a sombre place, where age and decay followed fast upon



MARION GORGE, ELWHA BASIN.
Photo by A. H. Denman.



LOWER SNOWFIELDS OF MT. SEATTLE.

Photo by Rodney L. Glisan.

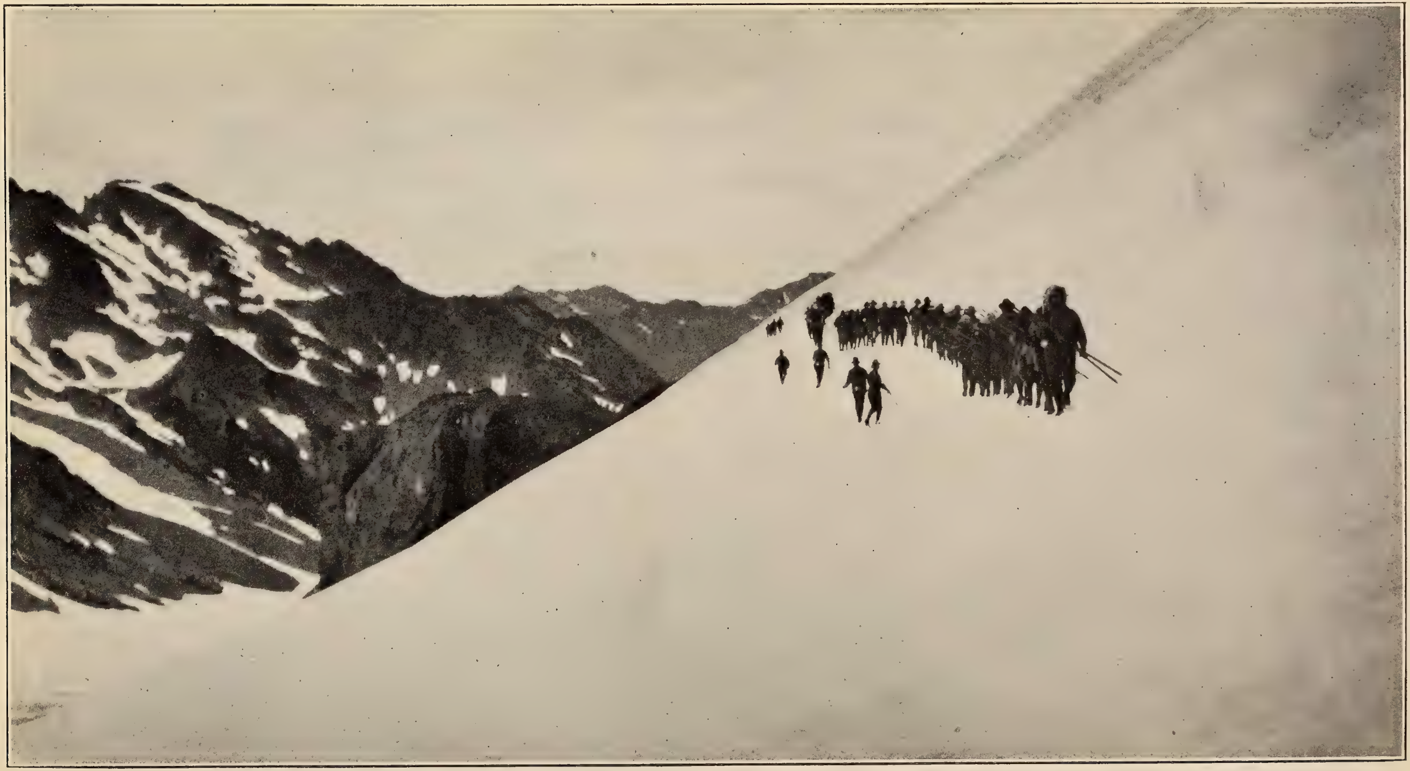
growth. How faces brightened when, towards noon, we reached an open gravel bar beside a bend in the Elwha where the sun shone brightly, the river ran sparkling over rapids, and on every hand bloomed beds of pink and yellow mimulus! In the heart of the solemn, aged forest we had surprised a forgotten lurking place of spring.

Later we emerged from the woods into an alpine park whose every rock and hillock was crowned by patient mountaineers awaiting the pack-train. This was Elwha Basin, our home for eight days to come, a sloping amphitheatre lying under a snowy range. Its high western walls, streaked with snow and hung with waterfalls, concealed the neighboring peaks of Queets and Meany, but the splendidly sculptured Seattle Group loomed grandly above us to southward. Far down the Elwha Cañon rose Mt. Anderson, whose wide snow-fields shone upon us each evening rosy with alpenglow. On the ridges of the basin, out of the track of avalanches, long arms of forest invaded the heather slopes; and daisies, columbine and violets bloomed on the uplands though the lower meadows were hidden by snow.

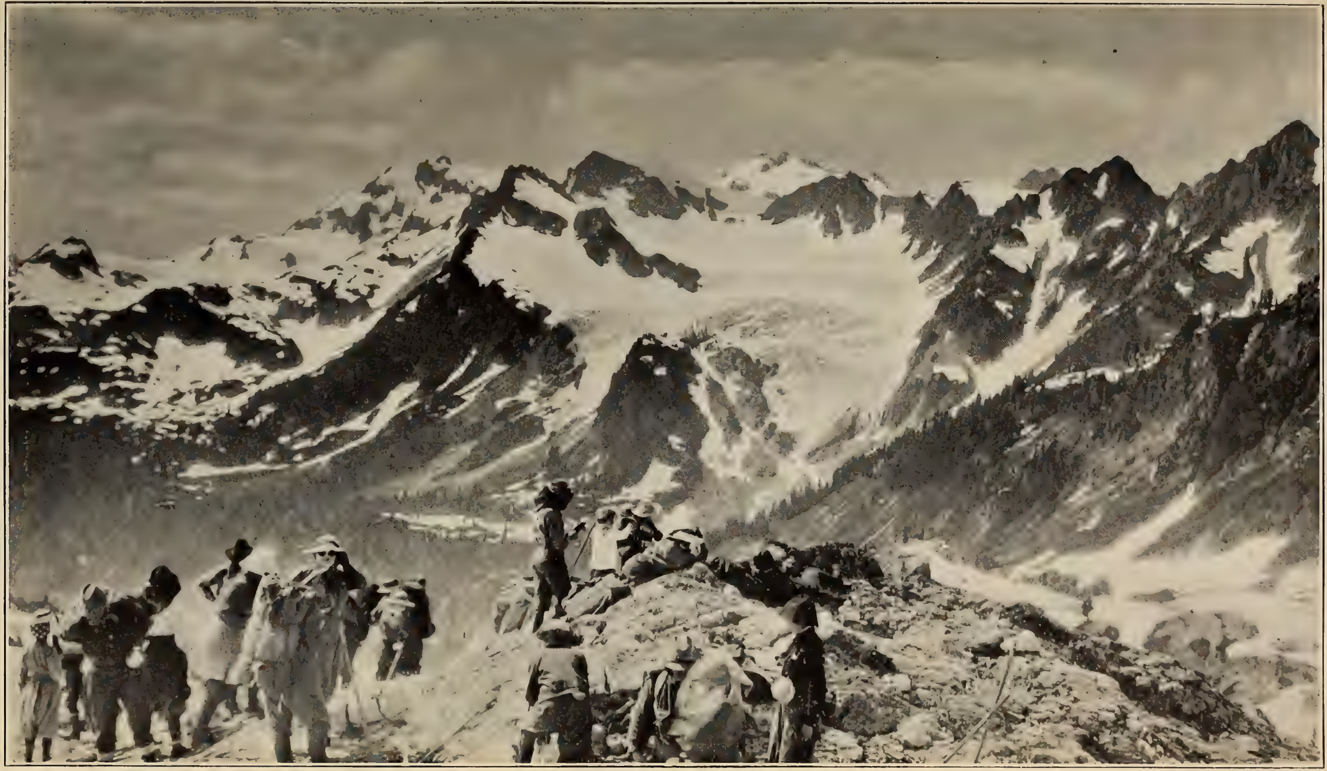
After a day devoted to camp making and fitting boots with screw-caulks we were ready for the practice climb, an unnamed peak of the Seattle Group. Eighty-two climbers were enrolled. All were equipped with alpenstocks or ice axes and all wore dark glasses and heavy gauntlets, and smeared faces with grease paint as protection against snow-burn. Across the basin, up snow-fields, past the sculptured ice of a glacier we climbed, and on over higher snow-fields to a ridge of rock. Here our troubles began. Showers of loosened rocks sent down by novices so delayed the long line that noon was upon us before all had crossed from snow to rocks. After luncheon we resumed our upward way. It was slow, harassing work, swinging from rock to snow and back again, always menaced by falling stones. In some places climbing was quite difficult. Here the efficiency of the Mountaineers organization showed admirably. Wherever a helping hand could possibly be needed, wherever there was chance for accident, a reliable man was posted, ready to chop steps in the ice, to use his alpenstock for foot or hand hold, or to steady a life-line. The summit was too small to accommodate our whole party at once, so scant opportunity was given to enjoy the view we had toiled and risked so much to gain. As daylight hours were growing few we descended to the snow-fields by a shorter route. Three times only by prompt action were serious accidents averted, for not only was the descent dangerous, but many were feeling the strain of long hours of exertion. Once on the snow-fields we made rapid time and before dark were in camp, thankful that a really dangerous climb was safely over.

Three days later we started for Mt. Olympus, knapsacking, as late snows prevented animals from crossing Dodwell-Rixon Pass. A climb of 2,500 feet and a walk of five miles brought us to temporary camp in Queets Basin, a park-like valley between Mt. Queets and Mt. Olympus. On three sides rose dark mountains relieved by great snow-fields and masses of glacial ice. Camp was on a sloping bench between two deep cut streams. Groups of alpine firs and hemlocks, mountain pine and Alaska cedar *(Chamaecyparis nootkatensis)* framed lovely pictures of Mt. Queets; but Olympus, whose triple crown had shone grandly before us from Dodwell-Rixon Pass, was hidden by the front of the Humes Glacier, a wonderful wall of pillared seracs buttressing the flaming sunset arch overhead. Our camp was carpeted with thick mats of bryanthus, cassiope and dwarf huckleberry, and bordered with rhododendron patches or tall white spikes of squaw grass *(Xerophyllum tenax)*. In the hollows erythronium lilies budded through the snow, and along stream-beds and marshy bottoms bloomed patches of buttercups, veronica, blue violets or the curious, insectivorous *pinguicula vulgaris*.

Sunset was a glorious spectacle, enjoyed by many of us from our sleeping-bags that we might be better prepared for our fire-light breakfast before dawn. Sixty-seven of us made the climb, longer but easier than the try-out on Seattle had been. Our course lay over the Humes Glacier, across Blizzard Pass, down seven hundred feet to the Hoh Glacier and up its length to the East Peak. Except for a short rock climb at the summit it was all snow and ice work, but only once was it steep enough to require the chopping of steps or the use of a life-line.



SNOWFIELD ABOVE THE HOH GLACIER, MT. OLYMPUS.
Photo by Rodney L. Glisan.



MT. OLYMPUS FROM DODWELL-RIXON PASS.

Photo by Rodney L. Glisan.

All the more could we enjoy the grandeur that surrounded us. This central portion of the Olympic Range was one of the wildest regions we had ever seen. The three peaks of Olympus and the high ranges radiating from them were all dark, precipitous mountains of metamorphic rock. Glaciers with their castellated ice cliffs and their brown-veined, blue-shadowed crevasses, shone all about us. From the Straits we had followed the paths of their ancient flow. Now we stood among their living fountains and could trace the course of their cañons circling among forested ranges to the Pacific. The ocean was veiled in fog, but a silver strip of the Straits showed far to the north. Along the eastern horizon the Cascades lay outstretched for two hundred miles, their shining ranks crowned by the loftier, more gloriously radiant volcanic cones, Baker, Rainier, Adams and St. Helens.

One more night we spent in Queets Basin where the anticipated Olympian rains overtook us with most of our rainproof outfits many miles away. After another day in Elwha Basin, which offered choice of an easy climb of Mt. Barnes, a difficult ascent of Mt. Meany, or a lazy time of rest, we broke camp.

Four miles down the Elwha branched the new trail, leading to the Low Divide. There, at the edge of a meadow, bright with lupines, elephants' heads, *(Pedicularis groenlandica)* columbine, and great masses of delphinium, waist-high, we made camp for three rainy nights. One clear morning gave opportunity for a visit to Martin's Park and Mt. Christy, an unfrequented place where fresh elk tracks everywhere preceded us—beside ponds where yellow lily pads bloomed, among marshes fragrant with violets, and up in the level, heather-clad park where streams from Christy's glaciers meandered. Then for a day and a night rain fell, and we huddled together under tents and flies, burned untold quantities of firewood, and drove the cooks to distraction with our clamorous appetites.

Though the high mountains were now left behind, the most difficult part of our journey was yet to come. The trail beyond the Low Divide was of the roughest description, and the forest cover on the more rainy western slope was even more tropical in its luxuriance. Tangled labyrinths of fallen logs, dense thickets of alders or young conifers, treacherous marshy bottoms, hillside bogs, where floundering animals wallowed helplessly in the mire, and insecure footing along loose edges of hastily cut hillside trails—all these had to be contended with. Sometimes it was but a blazed way that we followed over rough ground with hardly a sign of clearing underfoot. Sometimes we followed in the beaten track of elk, who apparently strike straight for their goal, regardless of contours. Their ups and downs through the rolling forest gave rapid walkers somewhat the sensation of riding the crests of a raging sea. Pasturage was at times a grave problem. Our pioneer pack animals suffered so much, indeed, both from lack of food and from the terrible trails, that for days we voluntarily burdened ourselves with many pounds of our belongings to relieve them. As travel increases clearings should be made and planted with forage. With improved trails and better feed this route across the Olympic Peninsula would soon become one of the great scenic features of the Northwest.

After another rainy camp at Promise Creek came a day of many vicissitudes, beginning with five log crossings of the Queniult River, where twice a dismal splash announced the fall of a mountaineer. A pretty incident occurred as we waited upon the bank for a tree to be felled for us. A water ouzel, feeding in the stream, repeatedly flew back and forth within a few feet of us to investigate gay sweaters or bandannas. All through this region both birds and Douglas squirrels were remarkably tame. The squirrels, indeed, showed embarrassing partiality for us as bed-fellows. At noon we reached a side cañon about two hundred and fifty feet deep where jutting rock, impossible to dislodge without dynamite, made it necessary to unpack the animals and carry the loads across by hand. The women, the cooks, and a group of men detailed for camp making pushed forward, while the majority of the men waited to help with the pack-train.

Camp was in a lovely spot, a bench above a stream overarched by two great moss-hung maples *(Acer macrophyllum),* and surrounded by fir forests where twilight gathered early. Hours of hungry waiting were rewarded by the arrival of thirty dunnage bags. Commissary was reported at least two hours behind. Improvising lanterns out of tin basins and candles, an investigating party started back. Long after dark the lantern corps returned with a solitary messenger bearing tidings that the whole train was benighted far down the trail. He brought a bag of hardtack, a quarter of a disk apiece, and on that and a cup of cold water we went to bed, the contents of thirty bags so conscientiously distributed among sixty sufferers that none might claim the base distinction of having slept warm.

But even in the cold dawn not a complaint was heard. About 8 o'clock frying pans, bacon, and flour began to appear, borne on the backs of fellow mountaineers. We broke our fast with three prunes apiece and some time later, twenty-two hours after the last square meal, we were feasting royally. However, ours had been the easier part. Not only had the men carried all the baggage across the cañon, not only had they dragged animals out of the mire, unpacked, repacked, unpacked them again, but they had carried into camp from forty to fifty pounds apiece on their own shoulders. The exhausted animals could carry their loads no farther. Time and again one would slip on the loose edges of the trail and roll down the bank. It seemed a miracle that none was hurt. Fortunately sacks of grain were cached here and the itinerary admitted an extra day of rest.

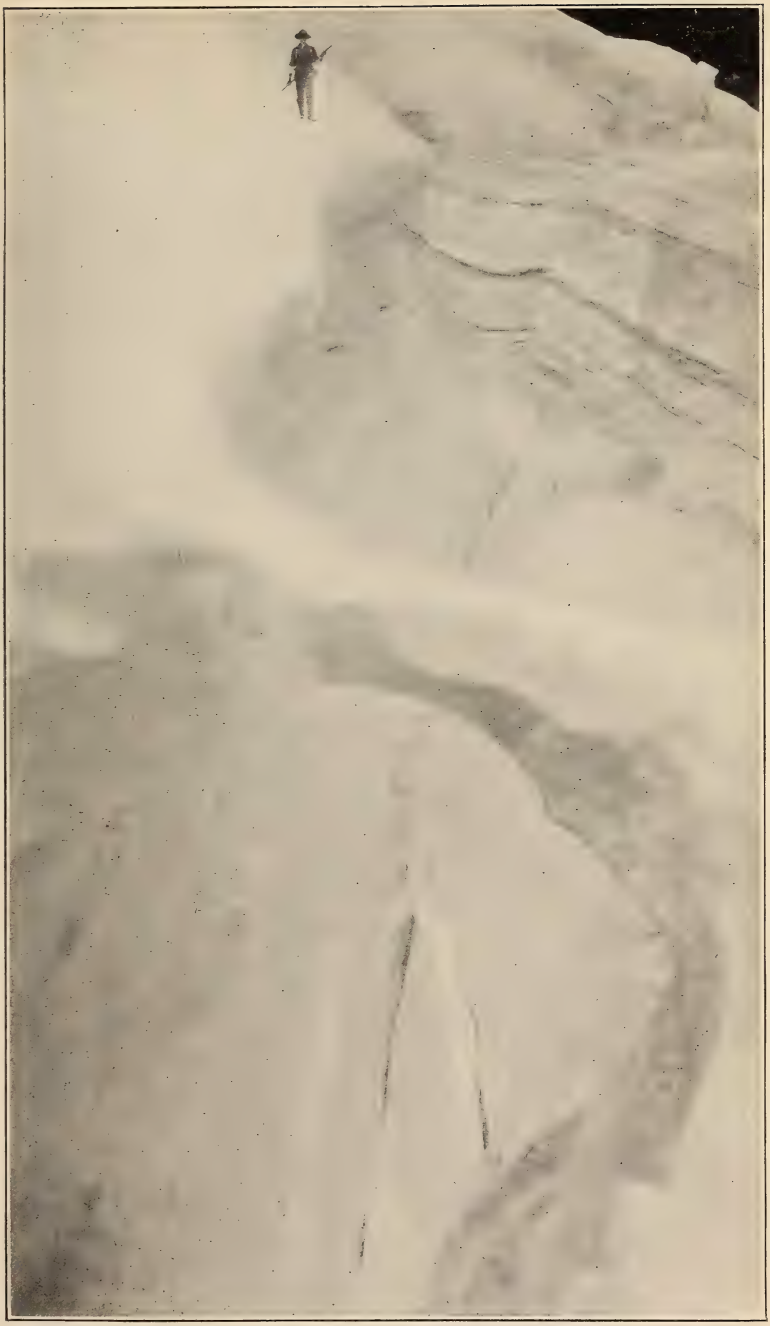
A long climb the following morning brought us to the Queets-Queniult Divide, a high park region of heather slopes and erythronium beds, of hemlock groves and dodecatheon-starred strips of meadows. Later the divide narrowed to a mere knife-edge. From one watershed to the other and back the trail swung, on one side the deep cañon of the Queets and far away, beyond rolling forest lands, the white, vision-like crown of Olympus; on the other a green basin where lay camp.

One more day of forest trail brought us to the outposts of civilization at Lake Queniult. Above the lake the river valley was dotted with prosperous farms. Gigantic Sitka spruces, *(Picea sitchensis)*, broad-leaf maples, and vine maples *(Acer circinatum)*, here replaced the firs and hemlocks we had travelled amongst so long. Our campfire circle that night held many strange faces—farming people assembled to greet us, and Indian canoe-men with their squaws and children. Here we held our circus to the great delight of our brown-skinned visitors.

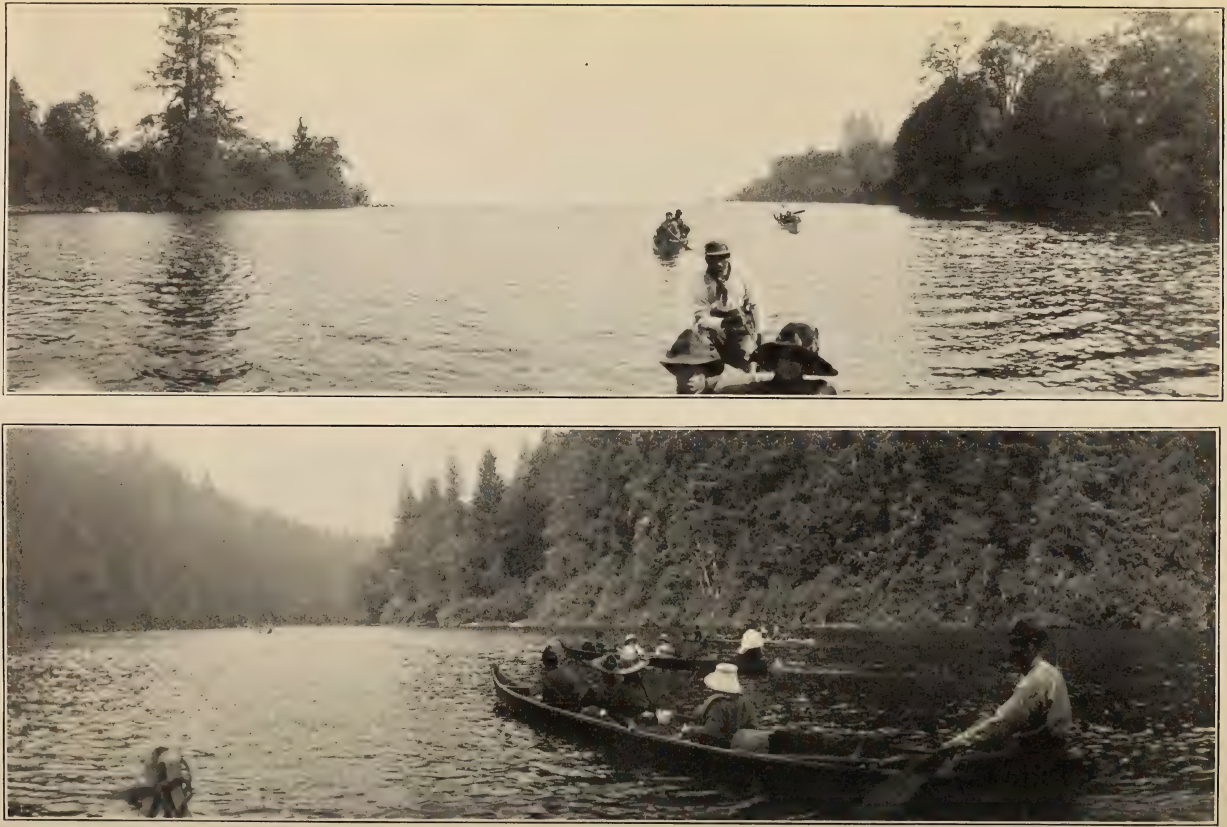
Thirty-five miles away, across Lake Queniult and down where the Queniult River met the Pacific, stood the Indian village, Tahola, whither we were to journey in canoes. In our honor the Indians had hewn and blasted a way through log jams around which portages had hitherto been made, and for the first time in twelve years the whole river was open. Most of the twenty-three canoes that awaited us were manned by two paddlers, in bow and stern. In some a squaw occupied the bow, as skilful and untiring as her husband. Some brought their children along, and one canoe held the entire family, including the dog and cat. Their paddles were rather unusual in design, short-handled, and with a pointed blade. Among rapids or log jams a pole was used. Our canoe was a cedar dugout, twenty-eight feet long, paddled by one man and containing seven grown people and a three-year-old Indian boy.

Only two hundred and fifty members remain of the Queniult tribe. Another small tribe on the extreme northwestern point of the peninsula, near Neah Bay, alone of all the tribes of the Northwest, speaks the Queniult language. The Queniult people are an interesting tribe, with unexpected depths of intellectuality beneath their characteristic Indian boastfulness. Even our canoe-man, an acknowledged buffoon, could seriously discuss conditions among his tribesmen, their longing to hold the reservation lands in fee simple, their losing fight against drink. In another moment his wonderfully resonant voice would sound over river and forest in a wild chant that bespoke nothing but the aboriginal.

What a picture they made, these dark, graceful people, and what a wonderful experience their strength and skill brought us! Beautiful though Lake Queniult was in the silvery morning mist, it was not until we were across it and the incongruous launch that towed us so far had cast our long line of canoes adrift that the true charm of the day began. The river below the lake flowed through Queniult Indian Reservation. Here and there on a beach stood a wickyup with salmon nets hung in the sun, or on a low bluff a clearing held an Indian



CREVASSE IN HOH GLACIER, MT. OLYMPUS.
Photo by H. V. Abel.



INDIAN CANOES ON QUENIULT RIVER.

Photos by Edward T. Parsons.

cabin. The river banks were lined with a dense forest of Sitka spruce, relieved with patches of alders or cottonwoods, or vine maples turning to copper and bronze in prophecy of autumn. The journey brought in succession idyllic, dreamy stretches of smoothly flowing river where wild ducks were startled into flight before our bows; wide bends overarched with green among whose shadowy vistas shone the flash of a paddle; quickly flowing riffles where our canoes scraped bottom; tangled log jams with swirling eddies boiling amongst them, and stormy rapids where the river ran white and immediate destruction among the rocks seemed certain. It was a day of constant change, of incessant interest, of excitement alternating with deep peace, unlike any other day that our mountain experience had brought us. We, who had so often felt the strangely intimate appeal of running waters; who had lingered beside slow, eddying green courses or above cascades flying irised banners in the sunlight; who on warm afternoons had bathed in rippling pools that shone with copper and gold under the slant sun; who had even known the rarer delight of following many a little river to its source, now, borne along by the river, seemed ourselves a part of its ceaseless flow, travellers together, outbound into unknown seas.

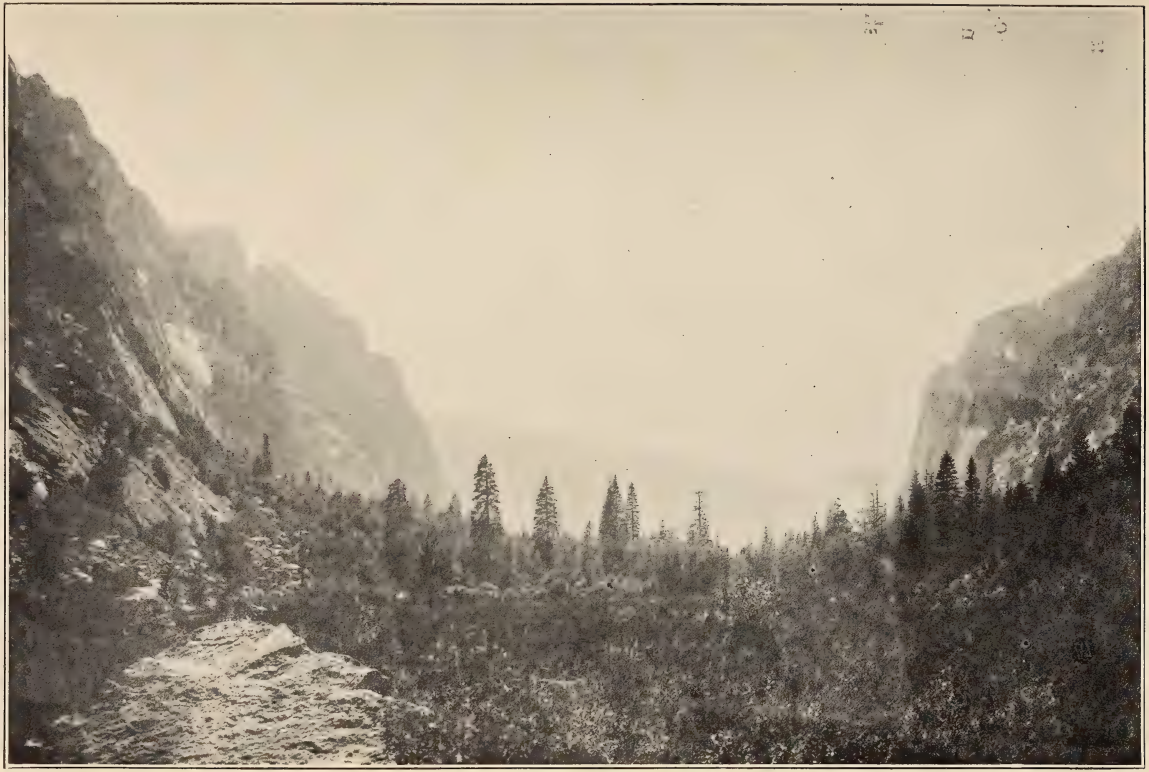
For some miles above its mouth the river ran sluggish and deep. The sky grew overcast and the brilliant, sunlit river was toned to soft green, brown and gray. At last Tahola Village came in sight, a cluster of crudely painted houses facing unpaved, sandy streets. Though we could see a white streak of breakers at the river's mouth and hear the roar of surf, from our landing place the ocean was hidden by low dunes of sand and gravel. Heaped upon them were great piles of gray driftwood, whole trees, even four or five feet in diameter, flung up by storms and bleached to a lovely silver. Among these was our last camp. Our driftwood fire was built in the lee of a ghostly giant whose roots and massive trunk not only gave welcome shelter from the ocean winds, but formed a wonderful rostrum for the last campfire ceremonial.

Our Olympic wanderings seem to end, not with the beach walk to Moclips next day, nor the railway journey home, but here at Tahola, down on the farthest point of land where river met sea in a surging rush of eddying waters. Across the river rose wooded banks and a dark, high promontory. Behind us piles of silvery driftwood concealed the town. Ahead lay the gleaming horizon line, sunlit under the fog. Beside us was the rhythmic, thundering roll of surf, the battling river water, and for all sign of human occupation the battered spars of a wreck, the perch of sea birds and scolding black crows. Though not a bright picture, like those we brought away from the mountain world, it was nevertheless one of indescribable grandeur, significant of elemental forces uncontrollable by man—all the more a fit setting, perhaps, for the home of a vanishing race.

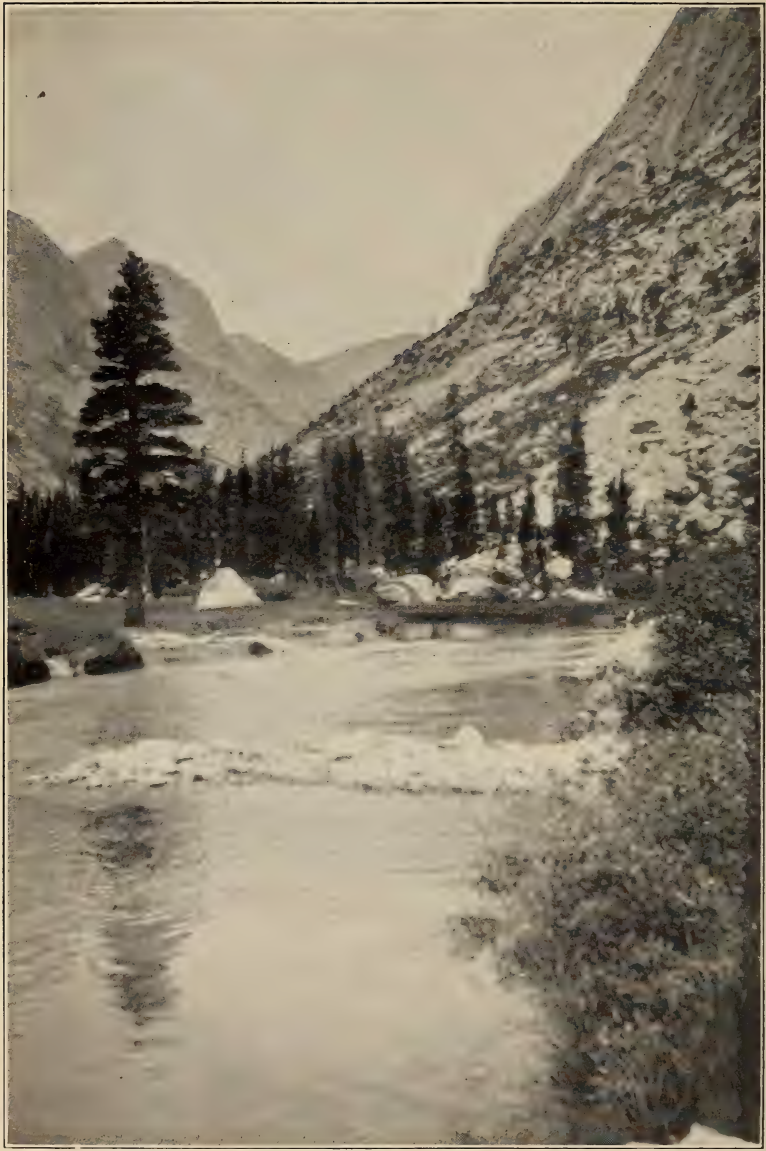
"Oh, our manhood's prime vigour! No spirit feels waste,
Not a muscle is stopped in its playing nor sinew unbraced.
Oh, the wild joys of living! the leaping from rock up to rock,
The strong rending of boughs from the fir-tree, the cool silver shock
Of the plunge in a pool's living water, the haunt of the bear,
And the sultriness showing the lion is couched in his lair.

And the meal, the rich dates yellowed over with gold dust divine,
And the locust-flesh steeped in the pitcher, the full draught of wine.
And the sleep in the dried river-channel where bulrushes tell
That the water was wont to go warbling so softly and well.
How good is man's life, the mere living! how fit to employ
All the heart and the soul and the senses for ever in joy!"

From Robert Browning's "Saul."



KINGS RIVER CAÑON.
Photo by J. N. Le Conte.



LOOKING UP GROUSE VALLEY, 1913.
Photo by Lena M. Redington.

THE 1913 OUTING TO THE KINGS RIVER CAÑON

By Lena Martha Redington

Our special train of Pullmans left Oakland early in the afternoon of July 2d. The next morning the Southern California contingent had been attached to our train at Mojave and 10 o'clock found us at Owenyo, a desert station on the east side of the Sierra. Here the sleepers were abandoned for a strange little train of mixed composition—freight cars, old-time plush-seated coaches, cabooses, anything that could be used to hasten our progress to the land of mountain peaks. As we looked back upon the suit-cases, destined for shipment to the point where we would next see our civilized clothes, a month hence, it was as if the station of Owenyo consisted of a city block of baggage, red-tagged. For an hour we travelled on the newly improvised train through a sage-brush country where the wonderful sky, the soft green of the vegetation, and the dull yellow of the sand seemed to release the spirit from worldly cares and suggest the freedom of the unconventional days to come. On the west rose the snow-streaked heights and pinnacles of Mt. Whitney. Next in the succession of peaks came Mt. Williamson, a complete reversal of Whitney's slopes, for it is precipitous on the west, and sloping on the east. This promenade of peaks ended at Citrus, or Kearsarge, as it is now called, where another motley array of vehicles was awaiting. This time there had been gathered, from far and near, conveyances propelled by horse-power, mule-power and gasoline-power, and into them we scrambled to be whirled through sand and sagebrush to Independence.

This interesting old mining town deserves more than a passing word. Far from railroads, it is unspoiled by close association with modern civilization. But, material beings that we are, not until we had settled the lunching question did we have time even to listen to the all-Indian band playing patriotic tunes; for this was July 3d. One would have attributed the general scheme of color and festivity to Uncle Sam were it not that wide festoons of evergreen spelled the words, "Welcome

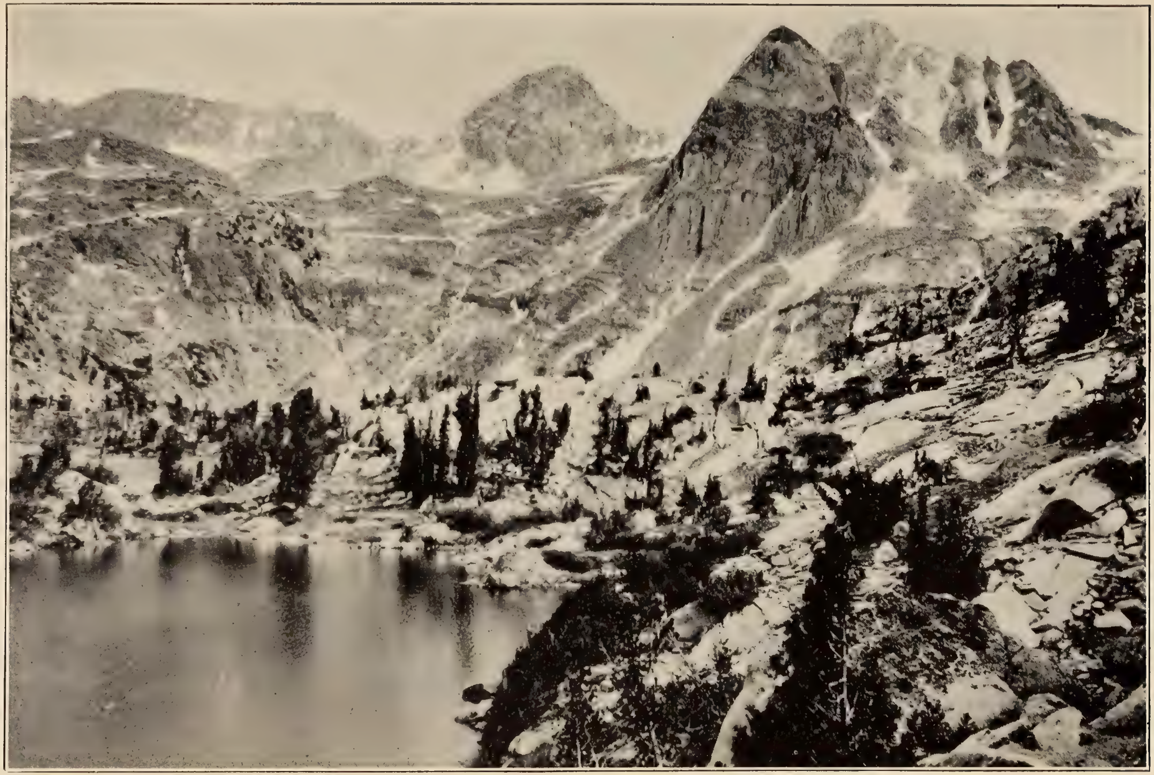
Sierra Club." The afternoon was spent in the same conveyances, en route for Pine Cañon. There we found all that was necessary for the comfort of our first night's camp.

Dreadful prognostications had made Kearsarge Pass all but insurmountable, for Kearsarge Pass is 11,823 feet above sea level and it is not usual the first day to climb so high, the elevation of our camp being about 6,000 feet. We had been awed to an early sleeping-bag, so we had to forego the pleasures of a sapphire twilight and of a starry sky. But the morrow had not half the terrors and drawbacks that we had been led to expect. Every quadruped in Inyo County capable of bearing a saddle had been pressed into service for the day's climb. The cavalcade which left Pine Cañon on that first morning of real exertion seemed to be interminable.

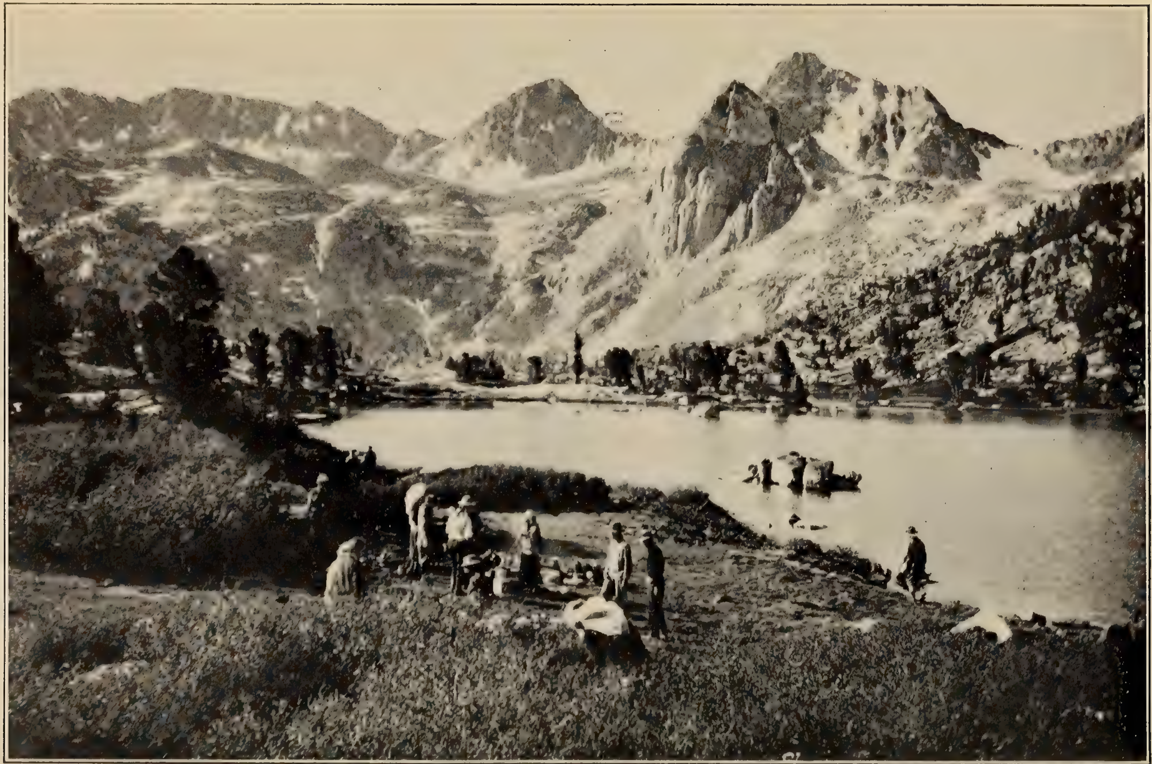
The view from Kearsarge Pass is justly one of the most renowned in the Sierra. To the east lay Owen's Valley and Independence, now grown very tiny. Prominent on the western horizon were North Guard, Mt. Brewer and South Guard. Peering out behind Table Mountain we could see just a corner of Milestone. This glimpse of an old friend furnished occasion for reminiscence of the previous summer's outing when the Club was on the other side of the Kings-Kern Divide. Close at hand were the Kearsarge Pinnacles and the Kearsarge Lakes, stretching on down to Bullfrog Lake, or, as it is sometimes called, Lake Bryanthus. Passing these we descended into the cañon of Bubb's Creek to our second night's camp at the base of the East Vidette.

To me there has always been something surpassingly precious about the first two or three nights in the mountains. Just as the poet used to comfort his fretful child by taking him to see the stars, so are we, children of this busy world, comforted by the lustre of these clear Sierran nights.

The more restless and strenuous were not willing to leave unseen the view from University Peak, 13,000 feet, or the shores of Vidette Lakes, about 11,000 feet above the level of the sea. But the busiest preparations had for their object the Rae Lake knapsack trip. While the main party was to descend into Kings Cañon by the Bubb's Creek trail, more seasoned adventurers were weighing and discarding until they got their



LOOKING DOWN ON RAE LAKE, 1913.
Photo by Lena M. Redington.



RAE LAKE FROM LOWER END, 1913.
Photo by Lena M. Redington.

packs down to a comfortable shape and weight. The route over Glenn Pass is a steep one and does not readily admit of transportation by animals. Hence *impedimenta* must be carried by means of the human foot and shoulder. A four days' trip was planned with provisions for about sixty persons. Rae Lake is one of the most beautiful if not the most beautiful of our Sierra mountain lakes. It is encircled by a wonderful array of towering peaks which it mirrors on its island-dotted surface.

A day of idleness on the shores of the lake afforded time for varied diversions—fishing, photographing and climbing. Next day we followed down the cañon of Wood's Creek whose walls reminded us of the steep cliffs of the Kern-Kaweah gorge, Paradise Valley, our aim. Here the importance of the moment lay in determining which was the spot whose previous historic associations made it important as a camp. The pleasing combination of fern and grass, tree and rock, moss and stream, might properly have challenged any other so-called Paradise to prove its claims. The cliffs grew higher and the walls closer together as we approached the main Kings River Cañon. One more day down the banks of the South Fork, past Mist Falls, and we were again with the main party which had preceded us to Kanawyer's at the junction of Copper Creek and the Kings River.

We remained five days at Copper Creek. It was such a delightful camp, with its memories of former outings, that we hated to abandon it. The camp stretched along the river bank, as busy at certain hours of the day as the sacred banks of the Ganges. Washing, pulling up water in buckets and other housekeeping duties here went merrily on; fishing and afternoon tea parties were held, and last, but not least, every afternoon the famous swimming parties at the big rock.

Many side attractions in the form of one-day trips kept us in active training. Roaring River Falls were three miles away, Granite Creek, two miles, and Sentinel Rock, with its superior view, towered above us. I must not omit to mention the famous two-day trip of three of our best mountaineers to Colby Pass, a newly discovered crossing of the Kings-Kern Divide, in the neighborhood of Milestone.

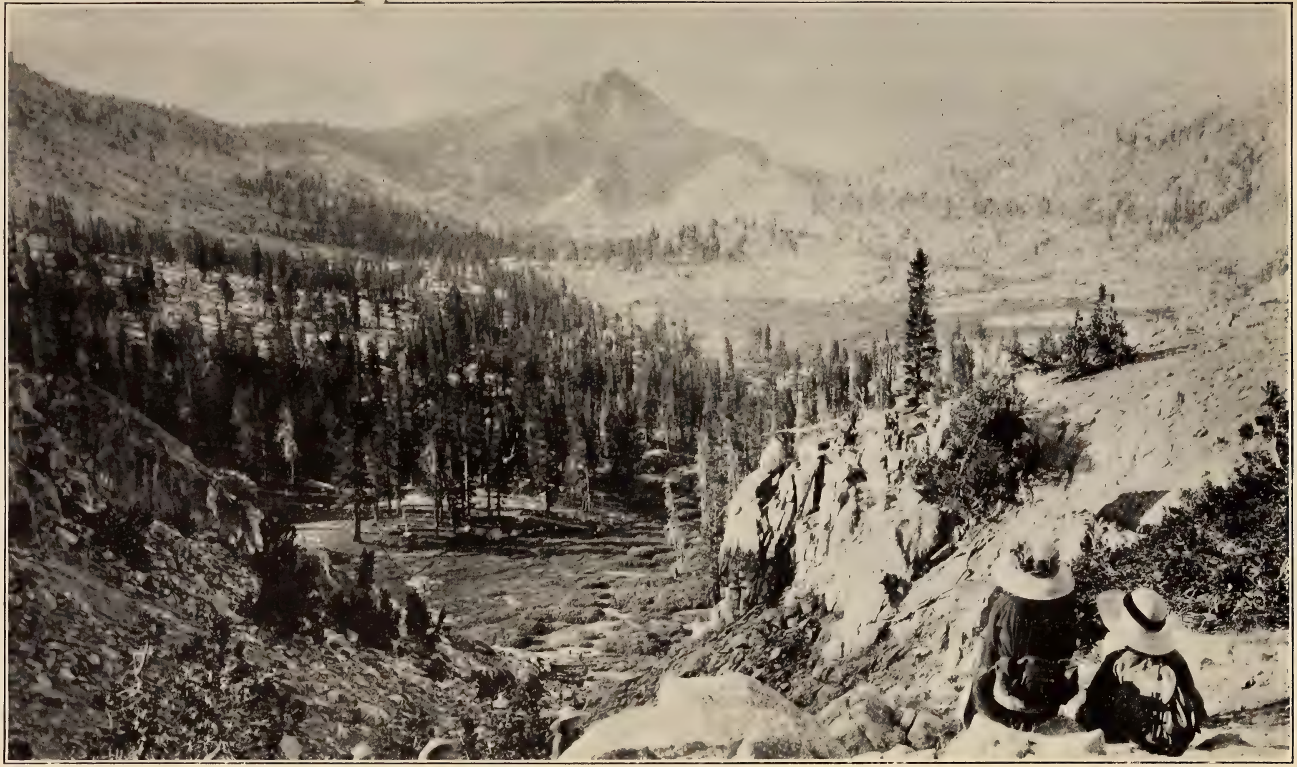
Unwillingly we brought to an end our delightful stay at this South Fork camp. The climb out, up the Copper Creek-Granite Basin trail—a rise of 6,000 feet—had been described as something to be dreaded, but, like all zigzagging, it was more monotonous than difficult. However, no climb can be very monotonous which unfolds such admirable views of distant valleys and peaks. Here we overlooked Sentinel Dome, Avalanche Peak, the Sphinx and Bubb's Creek. This landscape gave way to delightful spaces of red fir forest, which in turn began to thin out into granite boulders. Flocks of Mr. Muir's "hoofed locusts" met us here, driven by the usual Basque herders. By noon we were at Granite Basin, a beautiful camp though very cold, the only stop between the South Fork Cañon and Simpson Meadows.

Those who wished made the ascent of Goat Mountain, an excellent view point, since it stands conspicuously alone in the center of a circle of lofty peaks that form the rim of vision. The next day the party descended over 5,000 feet in elevation to Simpson Meadows, where a permanent camp was established for eleven days.

One of the most wonderful natural gardens in the Sierra is in Simpson Meadows. The Middle Fork of the Kings River rushes by. In the open, fern braes are mingled with a luxuriant growth of flowers whose fragrance greets one in advance. Ladies' tresses, elephant's heads, tiger lilies, larkspur, wild roses, wood violets, all these most delicate flowers are there, either mixed with ferns or alone in beds by themselves. Out beyond are picturesque groupings of pines framing views o Mt. Woodworth, 12,214 feet, and the Goddard Cañon. Our camp was conveniently installed on numerously branching streams, so numerous as to cause more than one person to stray by night beyond his bourne.

Beautiful as was our meadow it could not restrain the restless mountain climbers. The first morning's excitement centered around a pine on which were posted the lists for the side-trips scheduled to leave for Mt. Woodworth, Marion Lake and the North Palisade.

The less said about the many wet days that followed the better, though merry were the post-campfire ceremonies of



GRANITE BASIN, LOOKING BACK FROM PASS, 1913.
Photo by Violet Ehrman.

TRIPLE FALL, CARTRIDGE CREEK.
Photo by Louis Jensen, Shaver.
Print by C. R. Clendenning, Big Creek.

DEVILS CRAGS FROM NEAR WOODWORTH MT.
Photo by J. N. Le Conte.

DEVILS CRAGS.
Photo by Lena M. Redington.

drying out wet sleeping-bags and wearing apparel. In spite of the rain we started forth on our side-trips in three divisions. The Triple Falls brigade was to stay three nights at the falls on Cartridge Creek, making daily trips to points of interest. Another party went to Marion Lake and crossed into the Palisade Basin and visited Grouse Valley, and a third, the picked mountaineers, attempted the difficult and dangerous climb of the North Palisade (14,254 feet). The first night we all camped together up Cartridge Creek Cañon at Triple Falls. Next day we separated to go our various ways. It would take too long to relate the details of the trip to the Palisade Lake Basin, the long snow and ice slide, the magnificent storm clouds, the dead tree which we set on fire and which fell in the night among the sleeping bags, the incessant rain which at first seemed to succeed in defeating the project of gaining the summit, then the safe ascent of all those who waited over an extra day to try again.

About this time hearts began to grow heavy, for the end of the outing was drawing near. Only the four days' trip to Shaver was left and the 1913 outing would be over. These days were unsurpassed in beauty by any other part of the trip. The first night's camp was in Tehipite Valley with its wonderful cliffs and pinnacles and great dome, rising nearly 4,000 feet in the air above the floor of the valley. The rain need not be mentioned since everybody but the photographers had grown used to it by this time. While we have always, while travelling in the Sierra, prepared for a passing thunder shower, we never dreamed that it could rain so many days in succession, and at all hours of the day and night. The photographers sat with cameras poised, waiting for the dome to smile through the clouds which enveloped its cap, while the rest of us enjoyed the fleecy bits of cottony whiteness that floated from pinnacle to pinnacle.

The following day the steep climb out of Tehipite Valley made heavy demands upon suitable adjectives to express the artistic Japanesque effects of odd fir trees, blackly silhouetted against a white background of fog, or of logs and rocks which took on weird forms. Mystery surrounded even the most intimate friends, while distressed calls from lost sisters were heard above the drip, drip, drip of the pine boughs. This was Gnat Meadow, which seemed the veritable home of the clouds.

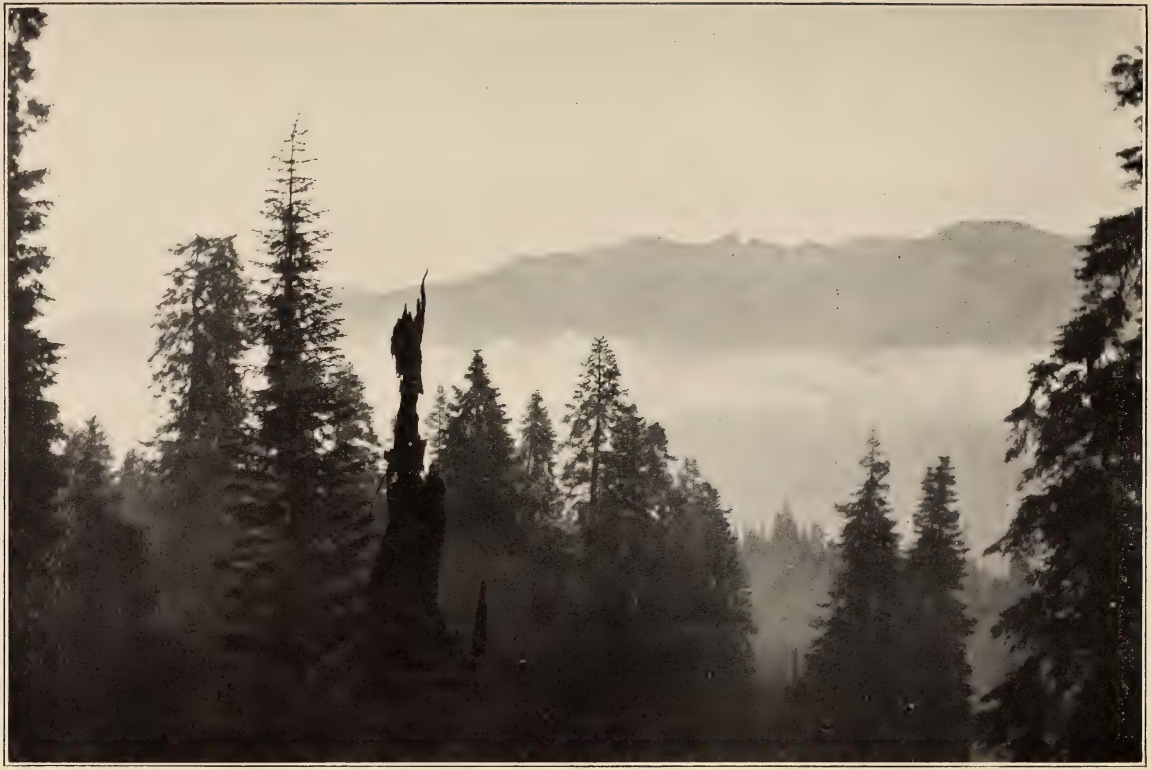
House Meadow lay eighteen miles beyond Gnat Meadow. The swimming in the North Fork of the Kings River was excellent and restful, so that by the time we had passed through the exquisite bit of forest and meadow left for the late afternoon, we arrived in good condition at the driest camp we had seen for some time.

En route to the next camp most of the party went through the McKinley Grove of Big Trees. Some rangers had volunteered to lead the march in order that we might not stray off on the various cattle trails. A line was formed about one hundred and fifty strong, or rather long, since the march was made in single file. Jokes and badinage passed up and down from one end of the line to the other until the grove was reached. The grove is typical of the Big Tree groves and the specimens numerous and of perfect form.

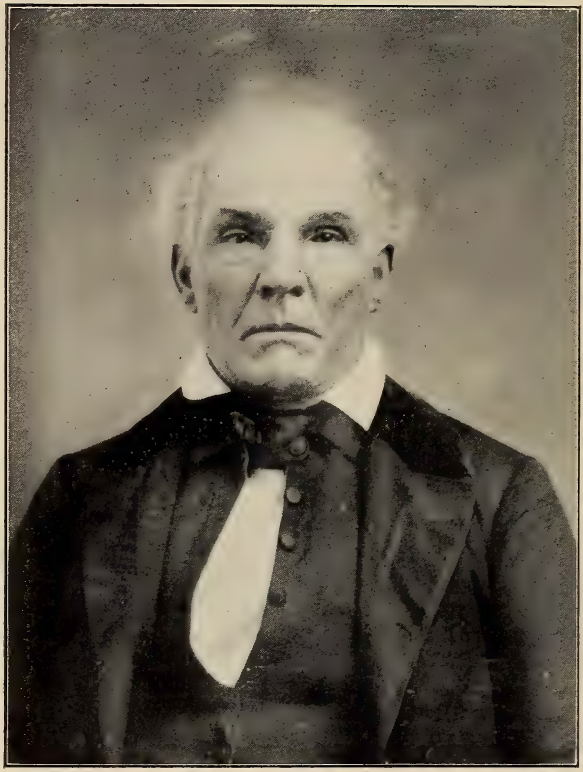
At Glenn Meadow, the last night's camp, we had to forego the pleasure of a camp fire because of the early start necessary next morning. It was not that the trip to Shaver was so long, only twelve miles, but the packers had to have the dunnage bags early in order to get down to Stevenson's Creek at half after ten, the time scheduled for departure on our special train. Shaver was surprised at eight o'clock in the morning by the unexpected descent upon it of the members of our party.

Down a steep trail, four miles beyond, was Stevenson's Creek, near the terminus of the San Joaquin and Eastern Railway. Civilization which we had left so far behind on the other side of the Sierra was meeting us again. We survived the excitement of the moving picture company, which photographed us; we enjoyed the expansive but warm foothill views, until finally Fresno came all too soon, and then a night in the train and we were back in town.

And now there often comes a longing to return to those pleasant spots—a longing which brings with it memories that are as refreshing as a cool, fragrant breeze from far-away mountain summits.



FORESTS AND CLOUDS NEAR GLENN MEADOW, 1913.



CAPTAIN JOSEPH REDDEFORD WALKER.

No portrait of Walker has hitherto been published so far as known to the writer. He is buried in Martinez Cemetery, and the date of his over-night camp in Yosemite Valley is taken from the monument over his grave. The portrait is from a daguerreotype in possession of Mrs. Mary Vaughan Walker, of Walnut Creek, California, by whose courtesy the reproduction is made.

Various rare books, maps and manuscripts in the Bancroft Collection of the University of California Library have been consulted.

For assistance in locating rare books, maps and manuscripts acknowledgments are made to Mr. H. I. Priestley, Assistant Curator of the Bancroft Collection.

FIRST ACROSS THE SIERRA NEVADA

By Willis Linn Jepson

In the year 1832 Captain B. L. E. Bonneville of the United States Army secured leave of absence from the War Department for the purpose of conducting on his own account an exploring and trapping expedition in the Rocky Mountains. As lieutenant in charge of a portion of his command was Joseph Walker, who had already achieved fame as a frontiersman. The expedition wintered in the Rocky Mountains on Green River, and the next year half of the party under Bonneville made an exploring trip northward. The other half under Walker was, according to Bonneville's account,[1] sent to explore the country on the western side of the Great Salt Lake. At the time, however, of organizing the Walker party at the rendezvous, it was well known, as it now seems to us, that the objective point of the party would probably be California, if, indeed, that decision had not definitely been reached.[2]

The country to the west of Great Salt Lake had never been traversed by white men. It was a terrifying and unknown region, a vast desert waste where men might easily perish in a short time for lack of water, where afterwards thousands did so perish. Scarcely anything was known of it in any respect. Men who had penetrated as far as the Rocky Mountains, trappers and explorers, merely knew that it was poorly watered and of great extent, that somewhere to the westward of it was the Pacific Ocean, and that along the shores of the Pacific lay a narrow strip called California, concerning which there were wonderful stories narrated at the campfires of the trappers.

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[1] Washington Irving, "The Rocky Mountains," Vol. I, p. 210; Vol. II, chs. 13 and 14. (Philadelphia, 1837.) The second edition was entitled, "The Adventures of Captain Bonneville, U. S. A., in the Rocky Mountains and the Far West." (New York, 1849.) See the accompanying map.

[2] Joseph Nidever joined the Walker party at Green River for the express purpose of coming to California. Had there been any doubt on this matter he would obviously, as Bancroft points out, have mentioned the fact in his journal. Nidever says: "In the spring there was a large number of trappers gathered at the rendezvous in Green River Valley, and among them Captain Walker and company, bound for California. We joined him, making in all thirty-six." (See Nidever, "Life and Adventures," MS., p. 58, Bancroft Collection.)

Across the gaunt deserts of the Great Basin Walker led his party, following down Mary's River,[3] afterwards called the Humboldt, discovering rivers and a chain of lakes,[4] and finding the course of all streams westward barred by a great north and south mountain barrier, the "Snowy Range," its crest of great height and unbroken by any low pass or river gorge. Walker scaled this range, the Sierra Nevada, being the first white man across it, descended the western slope along or near the waters of the Merced River,[5] discovered[6] and camped in Yosemite Valley, November 13, 1833, and passed the following winter in winter quarters at Monterey, the Mexican capital of Alta California.

The following spring Walker returned with his party to the rendezvous in the Rocky Mountains, following essentially the same route except that he passed out of the San Joaquin by way of Walker's Pass in the southern Sierra Nevada. This accomplishment was a great exploit in western exploration and Walker rejoined Bonneville after a highly successful trip. For the first time the vast desert of the Great Basin had been conquered, many lakes and rivers had been discovered, and it had been determined that the Sierra Nevada rose as an unbroken wall barring the western way for many hundreds of miles north and south. Most important was Walker's discovery that no river, the "Buenaventura" or any other, had its source or headwaters at the Great Salt Lake and emptied into San Francisco Bay or the Pacific Ocean, as represented on all the maps of the times.[7] All these important facts in geography are shown on the map[8] accompanying the first and second editions of the narrative of the Adventures of Captain Bonneville by Washington Irving. The results of the California expedition are, obviously, to be placed primarily to the credit of Walker.

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[3] cf. Bancroft, "History of California," Vol. III, pp. 389-392.

[4] Humboldt Lake, Walker Lake, Walker River, Mono Lake, etc.

[5] Nidever, l. c., p. 62.

[6] Appleton's Cycl. Am. Biog., Vol. VI, p. 328. Munro-Fraser, "History of Contra Costa County," pp. 688-690 (1882).

[7] Compare, for example, Col. J. J. Aberts' U. S. Map of Oregon Territory, 1838.

[8] Bonneville's map, which is reproduced in the Pacific Railroad Reports, Vol. XI, plate 4, gives the first generally accurate view of the courses of the Sacramento and the San Joaquin rivers, of the Humboldt River and its series of lakes, and of the land-locked character of the Great Salt Lake.

There is, however, a curious bit of misrepresentation connected with these events. Through Irving as a mouthpiece, Bonneville is made to condemn the expedition to California in the severest terms. While Walker is not actually condemned by name, the heaviest censure in respect to disobedience and incapacity is passed upon the expedition as a whole. The injustice of this attack will appear presently. First of all it should be remembered that Bonneville was a man of marvelous egotism and that probably he had private reasons for this outbreak.

That the Walker expedition had great consequences may readily be appreciated. It first dared to take the risks and face the dangers of the Great Basin deserts, it blazed a way to California and opened up a path for the Fremont expeditions, and for all those subsequent scientific and exploring expeditions which followed closely on the heels of Fremont, including the Pacific Railroad surveys. It is, indeed, just at the time of the Pacific Railroad surveys that we get an understanding ray of light on Bonneville's attack on the California expedition. Bonneville writes a letter which is intended to illuminate Bonneville,—and it does so, but not in the way that the writer of it intended. The time had now come when the Fremont and other expeditions to California had called attention to the importance of the first expedition from the Great Salt Lake across the deserts to California, and people were beginning to make definite inquiries regarding it. The letter in question is addressed to Lieutenant G. K. Warren, U. S. A., of the Pacific Railroad surveys. In this letter[9] the expedition to California has now become a highly praiseworthy undertaking; Bonneville cheerfully takes to himself all the credit for it and does not mention Walker at all!

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[9] Letter to Lieutenant G. K. Warren, U. S. A., from Colonel Bonneville, dated Gila River, New Mexico (Ariz.), August 24, 1857. It reads in part as follows: "On the map you send I recognize my names of rivers, of Indian tribes, Mary's or Marias River, running southwest, ending in a long chain of flat lakes, never before on any map, and the record of the battle between my party and the Indians, when twenty-five were killed. This party clambered over the California range, were lost in it for twenty days, and entered the open locality to the west not far from Monterey, where they wintered. In the spring they went south from Monterey, and turned the southern point of the California range to enter the Great Western Basin. On all the maps of those days the Great Salt Lake had two great outlets to the Pacific Ocean; one of these was the Buenaventura River, which was supposed to head there. . . . It was from my explorations and those of my party alone that it was ascertained that this lake had no outlet; that the California range *basined* all the waters of its eastern slope without further outlet; that the Buenaventura and all other California streams drained only the western slope."—Warren's Memoir (Pac. R. Rep., Vol. XI, pp. 33-34, 1859). See, also, footnote 8, supra. Contrast the foregoing encomium of the California expedition with Bonneville's violent censure, twenty years previously, of "this most disgraceful expedition." (Irving, "The Rocky Mountains," Vol. I, p. 144. 1837.)

Joseph Walker was a product of those times and conditions of the western country which gave us a group of frontiersmen of very exceptional character. General Christopher ("Kit") Carson, William Sublette, James Bridger and many others were celebrated names, contemporaries of Walker. In one respect Walker was the superior of all frontiersmen of his time, namely, in his extraordinary powers of judging country from a distance. This is a quality that is obviously of great importance to the explorer. It was with Walker a special talent to view a region at a long distance, determine the best route across it, its general and special topography with reference to mountain passes, gradients and stream flow, and its capacity to sustain a party largely or wholly dependent for sustenance upon the country in the matter of water, of game, of grass and of wood.[10] It was undoubtedly to these gifts that the success of the California expedition was primarily due. The success of the feat otherwise must be credited to Walker's leadership.

This first expedition to California across the great interior desert, the first passage of the Sierra Nevada by white men, and the discovery of Yosemite Valley, have been largely neglected by students of western and California history. Doubtless the subject would repay investigation by the specialist. One source of information may be mentioned. The original journal of Captain Bonneville is now in the possession of Mr. W. C. Breckenridge, of St. Louis. This gentleman is a highly informed student of western exploration and it is to be hoped he may some time publish a full and faithful account of the contents of the Bonneville diary.

The group of frontiersmen to which Walker belonged were, as a whole, not versed in the schools, and the idea of preserving a narrative of their explorations was quite remote to them. They had a high sense of duty, of complete sacrifice to a great venture, and a wonderful passion for the trails and rivers of the western mountains, but they were as innocent of posthumous fame as the tribes of savage Indians whom they fought. It now seems a pity that they did not have coursing in their veins a few drops of New England blood, since a full narrative of their journeys and achievements would fire the senses and stir the imagination concerning a country which is still rich and warm for detailed exploration. Such regrets regarding such men are, however, idle. They lived, it must be said, in and for their day,—for the pure zest of adventure and the pure joy of exploration.

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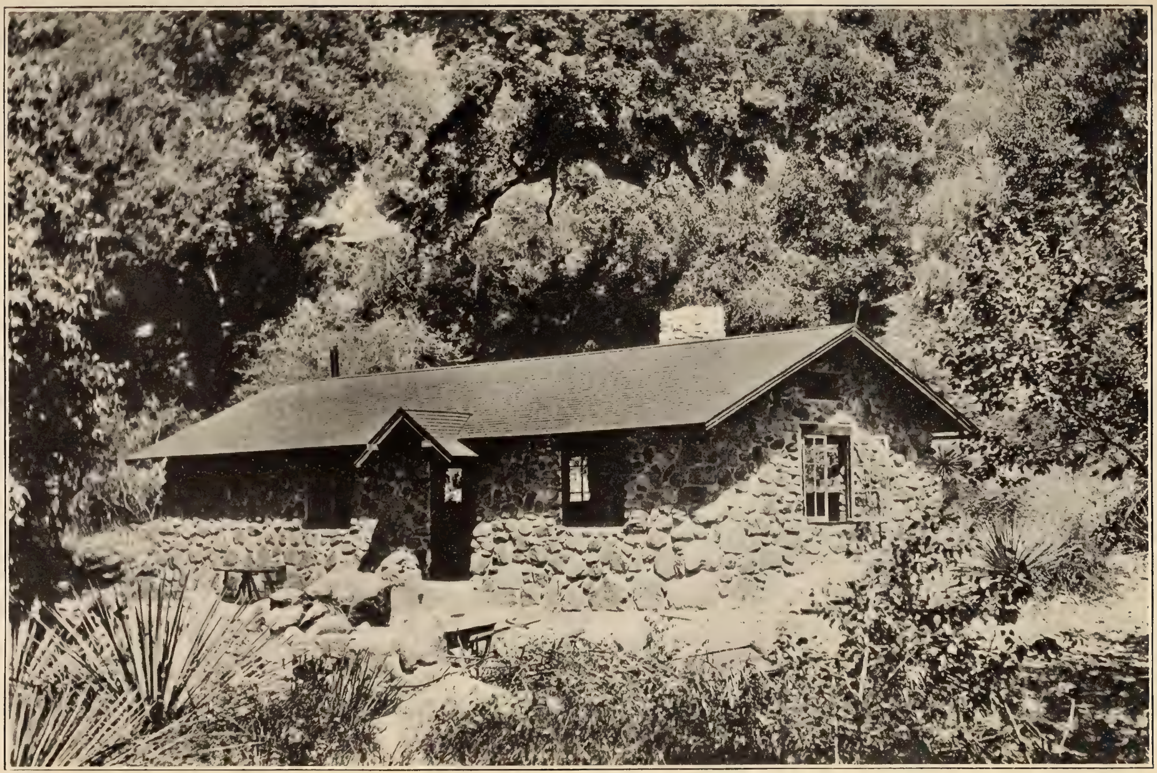
[10] He [Joseph Walker] was one of the best leaders I have ever met, a good hunter and trapper, thoroughly versed in Indian signs and possessed of a good knowledge of the mountains. He could find water quicker than any man I ever met."—Nidever, "Life and Adventures," MS., p. 62.

MUIR LODGE IN THE SIERRA MADRE MOUNTAINS

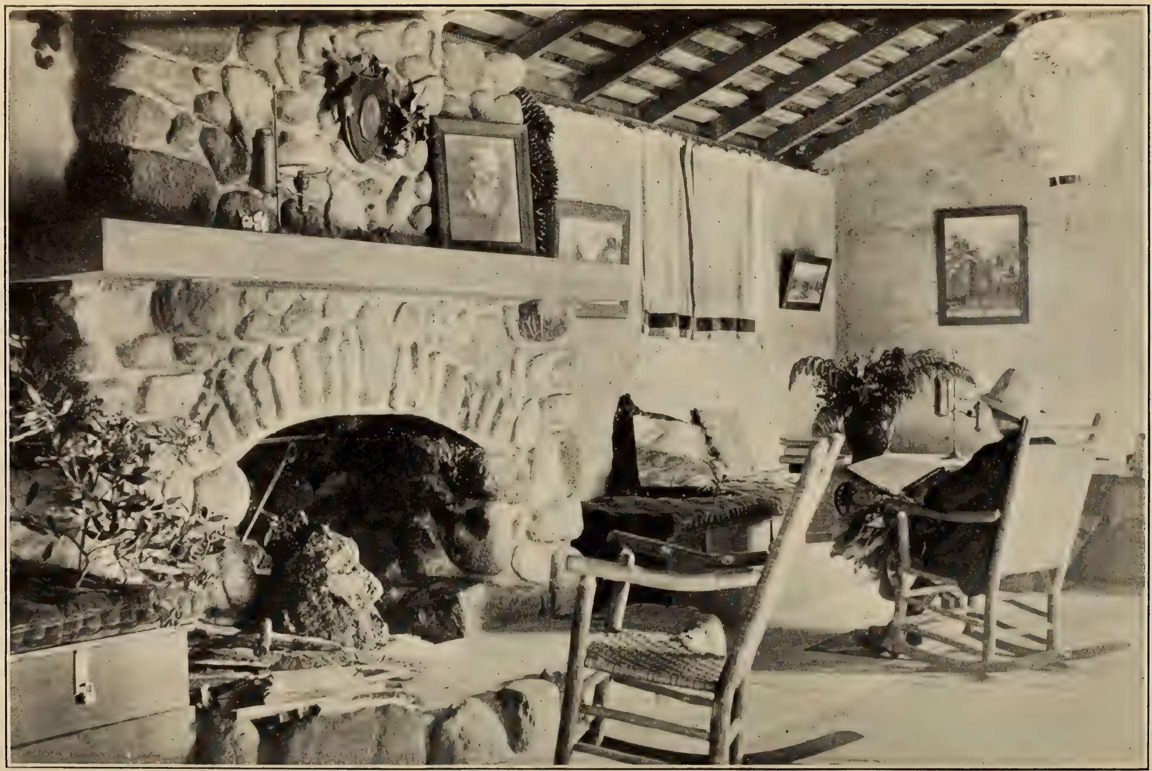
By A. Martha Walker

The rapidly increasing interest in our local walks in the vicinity of Los Angeles is bringing many people to know our own mountains. That we do have beautiful mountains, within easy reach, many do not know. Mt. Lowe and Mt. Wilson (6,000 feet), the nearest, loom up daily before the ordinary eye of the people of Los Angeles and beckon with their white shining trails, even at the distance of twenty miles. Farther east, "Old Baldy's" snowy crest (10,080 feet) is a familiar sight in winter, while Greyback and San Jacinto, both over 13,000 feet, are the monarchs of the range. These mountains are especially adapted to winter walks. When snow does fall on Mt. Lowe or Mt. Wilson, it is only an added attraction. One of our best trips last winter included seven miles on the sky line from Mt. Wilson to Mt. Lowe, over a trail that was covered with snow six to ten inches deep. That was a two days' trip and we spent the night at the Mt. Wilson Hotel, on the summit. Another memorable trip was with sleeping-bags and burros up Mt. Lowe and down via Switzer's Camp, when the yucca was in full bloom on the upper mountain slopes.

As the result of this increased interest in mountain climbs and walks, the Club has felt the need of a mountain home. The site selected is six miles from the town of Sierra Madre, which is one hour's ride from Los Angeles by the electric cars. The easy zig-zag trail leads for four miles up the east slopes of Mt. Wilson and then follows for two miles up the Big Santa Anita Cañon, crossing the stream at intervals. On the way up, beautiful views are constantly to be had back over the foothills and the San Gabriel Valley to the sea. The dreamy, hazy atmosphere, filling the cañons and softening the mountain slopes, casts a spell all its own on the traveler. In the cañon the stream hurries along by huge boulders, amidst banks of giant woodwardia ferns. Many beautiful cabins have been built throughout the cañon.



MUIR LODGE, SANTA ANITA CAÑON, 1913.
Photo by C. J. Fox.



INTERIOR OF MUIR LODGE, 1913.
Photo by C. J. Fox.

The lodge is built on three Government sites, leased from year to year. Back of it are large spreading live-oaks, while in the front is the stream with its islands, covered with alders and sycamores. The new trail continues on for about five miles, to the top of Mt. Wilson. The first day that the site was selected, each person helped to start the "building fund" in earnest by carrying up from the bed of the stream his quota of stones. From that time the Building Committee worked earnestly and the chairman of the committee unselfishly devoted his entire summer vacation to the work.

Getting the lumber carried up by burros was one of the many interesting problems. By constant effort, the secretary of the committee succeeded in getting splendid contributors to the fund. In the autumn, we were invited to be present at the dedication of Muir Lodge, October 4th and 5th. A few of us were fortunate enough to be present the Saturday before the dedication, and could see the actual work of construction. That day the locker-seats and the doors received their coat of paint; the pictures were hung, and the rustic oak table completed, while outside the shovel and wheelbarrow brigade kept busy. All this was skilled, but unpaid labor. The lodge, all of stone, is 20 by 48 feet, and has a large granite fireplace. The living-room is 20 by 35 feet, while the kitchen and a small locker-room take up the rest.

The cost of the lodge in cash was $1,350. The contract for mason work was the largest item. Long-term rental of the forty lockers, many more of which are to be provided, helped the fund. The Building Committee is pleased to announce that it has been all paid for by members of the Club, although no assessments were levied. Further assistance has been given by the Directors allowing a part of the fee of all new members joining the Club through our efforts up to December 1st. The furnishings were all donated by members and friends. The dark-green corduroy cushions on the wide locker-seats, useful also as beds, the pictures, rocking-chairs and rugs make it a truly homelike lodge. It is a particular joy to see hanging over the mantel the splendid autograph portrait of Mr. Muir. It was fitting that the lodge should be named after one who has pointed the way to the heights to "get their good tidings."

On the evening of the dedication one hundred and eighty people met in the lodge, as one happy family, to hear music and speeches. It was a dignified and earnest body of people assembled there, who knew that they were glad to belong to an organization that was really worth while—one that had accomplished much and gave promise of greater things to come. The next morning, a beautiful Sabbath, a veteran Club member acting as chaplain, dedication services were held and two little trees were planted, in the hope that they might "like their neighbors"—*Sequoia gigantea* and *Sequoia sempervirens.*

The lodge is a good starting-point for a trip up Mt. Wilson and over to Mt. Lowe, or farther back into the West Fork of the San Gabriel River. It is hoped that all the members of the Sierra Club and their friends will come to visit and to enjoy this, their new mountain home. The lodge is open the "year round," the key being easily obtainable by members at the foot of the trail.

SIERRA CLUB BULLETIN.

PUBLISHED JANUARY AND JUNE OF EACH YEAR.

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The purposes of the Club are:—"To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada Mountains."

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EDITORIALS

The Hetch-Hetchy Situation

The press of the country is almost unanimously of the opinion that a perilous precedent has been set by the passage of the Raker Hetch-Hetchy bill. It is the first time that permission has been given to a municipality to invade a national park. Had this been done under spur of a real public necessity it would not be a serious matter. The Sierra Club has always stood ready to approve the diversion of any part of the Yosemite National Park if it could be shown that it is the only place from which San Francisco can derive a satisfactory supply of water. But the Board of Army Engineers, in passing judgment upon evidence collected by the city for the express purpose of showing the necessity of the project, found that "there are several sources of water supply that could be obtained and used by the city of San Francisco and adjacent communities to supplement the nearby supplies as necessity develops." They add further that the water "from any one of these sources is sufficient in quantity and is, or can be made, suitable in quality. * * * The determining factor is one of cost." Since the truth of these statements is unquestioned the passage of the Hetch-Hetchy bill must be regarded as the first act in a movement to break down our national park policy, and to expose the parks to commercial exploitation by municipal politicians and engineers.

When the Park was established in 1890 the committee reporting the bill said: "The rapid increase of population and the resulting destruction of natural objects make it incumbent upon the Government, in so far as may be, to preserve the wonders and beauties of our country from injury and destruction in order that they may afford pleasure as well as instruction to the people." As watchful guardians of the people's playgrounds, Secretaries Hitchcock and Noble condemned the project as subversive of the purposes for which the Park was established. One Public Lands Committee after another did the same. But the project was kept alive, under one pretext or another, in anticipation of a more favorable political wind. Last summer the city's representatives entered into an agreement with the representatives of the Turlock and Modesto irrigationists, which however was never confirmed by their principals, and then the Hetch-Hetchy bill was adroitly "caucused" and agitated as a party measure. During the summer session the measure was rushed through the lower house, chiefly on the misrepresentation that a water famine was impending. The absurdity of this plea is apparent in the fact that water enough for two years was on hand; that the Calaveras dam, now in course of construction, is designed to provide for the need of decades to come, and that from eight to twelve years would be required for the construction of a Sierra water system.

The irrigationists discovered later that the bill to which their representatives had rashly given their assent, condemns large areas of irrigable lands to permanent aridity, and may ultimately deprive them even of the waters to which they thought they had legal claim. In any case, by investigations of the Conservation Commission of the State of California (Report 1912), the State Water Commission (Report 1912), the Irrigation Resources Investigations of the U. S. Agricultural Department (Bulletin 254), and the records of Annual Runoff of the Tuolumne, it is shown to be certain that there is not as much water as the city and the irrigationists together claim for their future needs. Quite apart, therefore, from the destructive effect of the project upon the scenic values of the Park, so conclusively set forth by Frederick Law Olmsted, the Hetch-Hetchy bill is unquestionably open to the charge of being an anti-conservation measure.

As every one knows, the hope of California's greatness lies in the agricultural development of her great central basin. This development is impossible without water. Yet the present bill proposes to divert for metropolitan needs, easily satisfiable from other sources, waters without which vast areas of wealth-producing land must remain as worthless as a desert. The bill is vulnerable on the legal side because it attempts to exercise federal control over the distribution of waters within a sovereign state. Measures are already being taken by the irrigationists to test these assumptions of the bill in the courts. But of more fundamental importance is the question of public policy involved. Suppose a city is short-sighted enough to undertake to destroy, quite needlessly as in this case, the agricultural possibilities of a region upon which its own future development in large part depends: Ought the federal government to become a party to such a project?

Now that the bill has been passed it is beginning to be seen that the amount which the city is supposed to save is not nearly as great as the nation and the San Joaquin Valley loses. The political wisdom of this scheme is comparable to the famous Scalp Act of Pennsylvania by which the state paid $90,000 for the killing of hawks and owls in order to save chicken-breeding farmers a loss of $1,875. Presently it was discovered, through investigations of the Department of Agriculture, that by the killing of the above-mentioned natural enemies of rodents a contingent loss of nearly four million dollars had been inflicted on the agricultural interests of the state. The absurd law was promptly repealed, but not until irreparable damage had been done.

Senator John D. Works, of California, has introduced in the Senate a bill to repeal the Hetch Hetchy legislation, and in his vigorous remarks accompanying the same sets forth the points on which he justifies his action. A thorough investigation of his presentation is to be hoped for, as the truth is all that those honestly on either side of the question can properly demand.

We concur in the view of one of our correspondents that "the labors of the various public-spirited individuals and civic organizations who worked to this end [to prevent this legislation] have not been in vain. The widespread and vigorous expressions of public sentiment in the press and elsewhere in opposition to the unnecessary invasion of the National Parks for commercial and utilitarian projects has been of permanent value in making similar projects more difficult if not impossible in the future, and our National Parks as a whole are more secure as a result of the Hetch-Hetchy fight." W. F. B.

WILD LIFE CONSERVATION It is to be regarded as one of the triumphs of an aroused public sentiment that the lobby of the feather importers did not succeed in running its steam roller through the United States Senate last summer. Through the efforts of numerous public-spirited organizations a carefully worded paragraph was introduced into the tariff bill, prohibiting the importation of the aigrettes, plumes, and feathers of all wild birds. Through the efforts of the lobby the Sub-committee on Finance was induced to report an amendment which exempted "the feathers or plumes of birds commonly recognized as edible or pestiferous." The best legal authorities on custom house procedure gave it as their opinion that under such a clause the plumage of every bird species in the world might be imported! A campaign was immediately inaugurated by the New York Zoological Society and the National Audubon Societies, ably supported by numerous local and State organizations. The California Associated Societies, of which the Sierra Club is a representative member, conducted a vigorous campaign from this side of the continent. The result was that the champions of the feather importers were routed, and the original text of the measure was adopted.

It is interesting to note that just ten days after the signing of the tariff law by the President the London feather market suffered a tremendous decline. This indicates that, with our ports tightly closed, the enormous numbers of birds usually slaughtered for the American market will not be killed. The Director of the New York Zoological Park has addressed to the Royal Zoological Society of Amsterdam a memorial urging it to induce the Dutch Government to forbid by imperial decree all exportation of wild birds' plumage from the islands of the Dutch East Indies. Our readers are referred to an interesting communication, in the Notes and Correspondence, from the Paris Society for the Protection of Animals.

An attempt is being made to impugn the constitutionality of the Federal migratory bird law, which was enacted last spring. It seems unlikely, however, that the legal soundness of the measure can be successfully challenged. Birds which, owing to their migratory habits, are not native to any one State or section, are clearly amenable to Federal protection. W. F. B.

ELIMINATION OF PRIVATE HOLDINGS IN NATIONAL PARKS BY EXCHANGE FOR FOREST LANDS

For many years the Sierra Club has advocated the exchange of patented areas existing within the borders of National Parks for public lands of equal monetary value, but unimportant from a scenic standpoint and existing outside of the parks. It has been impossible to induce Congress to purchase outright these private holdings, which in many instances have seriously interfered with the proper administration of the National Parks. The only feasible plan seems to be that suggested, of exchange for other lands owned by the Government. This should be done without further delay. A bill has been introduced in Congress and is now pending before the Public Lands Committee of the House, providing for the exchange of the privately owned tracts of land within the Yosemite National Park and containing a superb growth of sugar pine and yellow pine and other magnificent forest trees, and extending along the Wawona Road connecting the Yosemite Valley and Mariposa Grove of Big Trees. In lieu of this land, which should belong to the Government and be retained in its original condition within the Park, it is proposed to give land outside of the Park containing a stand of timber of equal value. The Yosemite Lumber Company has agreed to this exchange and the Forest Service has made the necessary estimates and the Park administration favors the exchange. There is no good reason why this bill should not become a law except inertia. The Public Lands Committees of the House of Representatives and of the Senate, Washington, D. C., should each be separately urged by all who have the welfare of the National Parks at heart, to act favorably on this bill, which is H. R. No. 12,533. Write now to your representatives in Congress, before you have a chance to forget. Unless the bill passes soon, the lumber company will, for economic reasons, be compelled to commence cutting. While you are writing, urge an exchange of the same character to be made to preserve the wonderful forest along the road to Signal Peak near Wawona and along the Big Oak Flat Road within the Yosemite National Park, leading into the Yosemite Valley from the north.

W. E. C.

EXCHANGE OF STUMPAGE FOR CUT-OVER LANDS WITHIN NATIONAL FORESTS

Another proposal which appeals to one as being admirable is that of exchanging standing timber on forest lands owned by the Government for privately owned lands from which the timber has already been, or will be cut. Of course, the cut-over lands have little present value and the Government should be able to secure them for a comparatively small amount of standing timber in exchange, which would represent the present value of these cut-over lands.

The officials of the Forest Service can doubtless work out some sort of an equitable basis for such exchange. This plan has many excellent features to recommend it. There are in the National Forests many private holdings which checker-board the Government ownership. This exchange plan will enable the Government and also the private owners to consolidate their forest holdings and thus administer and cut them with greatest economy to all concerned. Such a plan of exchange will enable the Government to gradually acquire title to all of the private holdings in the National Forests and thus remove many of its troublesome fire dangers and increase the efficiency of its administration of the forests. The cut-over lands will be more efficiently cared for by the Government, with a view to promoting a new growth of timber, and the stumpage they give in exchange will be cut in accordance with the most approved methods and left in the best possible condition to insure a second growth, the Government retaining the title to those lands also and only exchanging the timber growing on them.

The private owner is not ordinarily in any position to care for his cut-over land and protect it from danger of fire, which is unusually destructive to the new and small growth. The Government is in a position to care for this land much more effectively than the private owner, who usually has not the same interest and concern for the future of the forests. The Government can also impose reasonable restrictions on the cutting of the uncut private lands to be later taken over by the Government in exchange for stumpage, and thus receive this cut-over land in the best possible condition, having future growth in view. Before anything can be accomplished along these lines, Congressional action will be necessary. Those favoring such action should write the Forest Service, Washington, D. C., urging that this plan of exchange of stumpage for cut-over lands be investigated and the policy urged upon Congress if found feasible and desirable from the Forest Service standpoint. W. E. C.

THE PANAMA-PACIFIC EXPOSITION

Undoubtedly many members of Alpine Clubs and kindred organizations will visit the World's Panama-Pacific Exposition to be held in San Francisco in 1915. The Sierra Club desires to take this early opportunity to invite such visitors to make the Sierra Club rooms, 402 Mills Building, San Francisco, their headquarters. A register will be kept there so that mountaineers from abroad or the East may be able to meet. Any who wish to visit Yosemite or other points of interest in the Sierra Nevada will find at the Sierra Club rooms the most accurate and reliable information, which will be freely placed at their disposal. This Club also hopes to establish a camp in the Tuolumne Meadows, the most central camp-ground in the Yosemite National Park. This camp will be open during the summer season and is intended to afford accomodations to our mountaineering brethren at cost. Publications of other alpine clubs will please copy the foregoing. W. E. C.

REPORTS OF COMMITTEES

Report of Outing Committee, 1913 Outing

The 1913 Outing was the most ambitious outing in point of difficulty ever undertaken by the Club. Encouraged by the success of crossing the Sierra Range from west to east in 1912, the plan was reversed in 1913 and the special Pullman trains from Los Angeles and San Francisco were joined at Mojave and ran to Owenyo, the broad gauge terminus in Owens Valley on the eastern side of the Sierra. The narrow gauge then took the party a few miles further to Citrus, where conveyances transported us to Independence for luncheon.

That afternoon we reached the first night's campsite in Pine Cañon. The next day's trip involved a climb of nearly 6000 feet over Kearsarge Pass on the crest of the Sierra and then dropping down to camp at Vidette Meadows. A large number of saddle horses had been provided at Independence for that day, to aid in making the ascent, which proved to have been a wise provision. Another year this tedious ascent coming so early in the trip had better be broken and camp made at Onion Valley, half way to the Pass.

Never before did a Sierra Club outing party arrive so suddenly and so early in the trip in the midst of such grand and inspiring High Sierra scenery.

University Peak, Mt. Brewer, Center Peak, and other nearby summits were ascended and shorter trips made to Charlotte, Vidette and Center Basin Lakes. Knapsack parties totaling over fifty in all made the glorious circuit over Glenn Pass to Rae Lake and then down Woods Creek into Paradise Valley, and finally rejoining the main party, which had meanwhile gone down Bubb's Creek into the main Kings River Cañon or "South Fork Yosemite." The few days spent here were busy ones. Swimming, picnic parties to Mist Falls and Roaring River Falls, the climb of the Grand Sentinel, and preparing for the great feature of the outing—the trip into the Middle Fork—occupied the time.

Leaving Kings River Cañon by the Copper Creek trail, the party climbed 6000 feet to camp in Granite Basin. The next day the party descended into the Middle Fork Cañon and camped at Simpson Meadows—famed for its wild flower gardens and beautiful groups of trees, enclosed by stupendous cañon walls—among the highest in the whole Sierra. Trips were taken up Goddard Creek to Mt. Goddard, to Triple Falls, Marion Lake, and two members of the party visited Bench Lake, where the golden trout planted under the direction of the Club in 1910 were found to have attained a weight of two or three pounds.

About sixty members knapsacked via Triple Falls and Observation Peak into the seldom visited Palisade Basin—a wonderful combination of the wildest and most rugged region of the entire Sierra, with the jagged Palisade range over 14,000 feet in elevation towering to the east, and the most charming and picturesque meadow and garden spots along its main stream.

Fifteen members climbed the north Palisade (14,254 feet), being the second time it has ever been ascended. Mr. Chas. Michael made the first ascent of the highest of the Devil's Crags (12,612 feet). Most of these knapsackers visited Grouse Valley, which is another wonder-spot of the Sierra—sculptured walls rising Yosemite-like from a flowery meadow, through which the main river winds with sinuous curves. From Palisade Creek to Cartridge Creek the various parties found it rather strenuous going—reminding one of the Tuolumne Cañon, not alone because of the difficulties of travel, but also because of the stupendous cliffs and exquisite cascades and falls of the river. It will interest our members to learn that steps have already been taken by the Club, in co-operation with Fresno County and the Forest Service, to build a trail up this gorge, thus making Grouse Valley and Palisade Basin accessible with pack animals, from the west.

Regretfully leaving Simpson Meadows, the entire party descended the Middle Fork Cañon to Tehipite Valley—next to Yosemite and Hetch Hetchy the finest example of the Yosemite type of valleys in the Sierra. Lack of feed for animals prevented a longer stay and the next day the party climbed to Gnat Meadows, which was completely enveloped in clouds, and camped in a splendid forest of red fir. Camps at House and Glenn Meadows followed, and passing through Shaver, the party while still in the pine forests, boarded the special train of the San Joaquin and Eastern Railroad, and the thirteenth annual outing was practically over.

Considering the great difficulties of provisioning and transporting the baggage of so large a party through such rough and unfrequented territory—first crossing the crest of the Sierra and then ridges and cañons that few private parties have the hardihood to undertake — this outing stands out as being the most ambitious and at the same time successful of any in the history of the Club. There were 200 members in the main party, and unfortunately many who applied late could not be accommodated. Counting assistants and camp help, the party numbered nearly 240. The Club followed its plan of the two years previous, and in co-operation with Fresno County and the Forest Service, hired a crew of six trail men, who traveled in advance of the Club and repaired the extremely rough trails in this region. They were left in better condition than they have ever been. The Club is indebted and acknowledges its appreciation to the Supervisors of Fresno County, Mr. J. E. Eibeshutz and friends of Independence, and to Mr. Paul G. Redington, Supervisor of the Sierra National Forest, for their part in making the outing such a great success. In spite of the unusual amount of rain encountered last summer, something very exceptional in the Sierra, we shall look forward eagerly to the day when we shall revisit this wonderfully attractive portion of the Sierra.

Respectfully submitted, Wm. E. Colby, *Chairman,*
J. N. Le Conte,
E. T. Parsons,
Outing Committee.

REPORT OF THE EXECUTIVE COMMITTEE, SOUTHERN CALIFORNIA SECTION, FOR THE YEAR 1913

The past year has been the most active in the history of the Southern California Section of the Sierra Club. The greatest single achievement of the members in this end of the State, has been the building of "Muir" Lodge in Big Santa Anita Cañon. A detailed descriptive article appears elsewhere in this issue. The splendid spirit of loyalty manifested by our members, both by their generous donations towards the Lodge Building Fund and the subsequent equipping thereof, has been very gratifying. Nearly 200 new members have been brought into the Sierra Club as a result, making our Southern list total 600.

Local walks have been held every two weeks with an average attendance of about thirty-five.

The recently elected members of the Executive Committee of the Southern California Section are as follows:

Chairman, Everett Shepardson; Secretary, Phil S. Bernays; Treasurer, Charles A. Fox; C. S. Tappaan; H. E. Bailey, Los Angeles; Miss Mary Kellogg, Pasadena; Miss Edith Steinberger, Sierra Madre; Dr. Geo. A. White, Santa Barbara; Geo. W. Marston, San Diego. The last-named gentleman through pressure of business has been compelled to tender his resignation, and in his stead Chas. P. Douglas of San Diego has been elected.

Much interest has been shown locally in the Hetch Hetchy proposition and many telegrams of protest have been sent to the Senators and to President Wilson.

Prospects for an active New Year in Southern California were never better.

For the Committee,
PHIL. S. BERNAYS, *Secretary.*

REPORT OF LE CONTE MEMORIAL LODGE COMMITTEE, SEASON OF 1913

The Committee desires to express its appreciation for the valuable activities of the Custodian during the past season. Worthy representation advances the Club interests materially and makes effective its efforts to serve the traveling public with hospitality and authoritative information regarding the entire Park region.

To the Le Conte Memorial Lodge Committee:

It was arranged that the Le Conte Memorial Lodge should be opened officially on May 1, 1913, and closed on August 1st, two weeks earlier than usual. But it was convenient to the Custodian to open the Lodge unofficially to the public shortly after his arrival in the Yosemite Valley on April 4th. About 250 visitors came to the Lodge during April. Although snow remained on the ground in the shadow of Glacier Point until May Day, the bright April sunshine made the Valley attractive to increasing crowds, who came to see its booming falls at their height. Also, in September's autumnal tints the Yosemite was in its richest splendor, affording rare delight to all who lingered late. The Custodian believes that special mention should be made of the unusual charms of the Yosemite in early spring and Indian Summer.

From April 10th to August 26th, there were 2,713 visitors who registered. Many who came in large parties did not sign their names, and it has been estimated that forty per cent of those who came to the Lodge did not respond to repeated invitations to register. Therefore, the total number of guests of the Sierra Club at its Lodge in 1913 would approximate 4,500.

An unusually rainy season made the blazing fireplace welcome, and many lingered to get a better acquaintance with the Library. More books on natural science and out-door life are needed, especially the later works of John Muir and Joseph Le Conte.

Two improvements to the Lodge are needed. The fireplace is a menace to the safety of the building, and a stone or cement floor should be extended outward for at least three feet, replacing badly-warped wood. Also a water pipe should supply the Lodge directly, affording water not only for convenience but with sufficient pressure for adequate fire protection. An abundance of water, which can be readily provided, will also make it possible to irrigate an attractive fernery and wild-flower garden, conforming, of course, closely to nature. The Lodge is somewhat hidden from view, and such a fern and flower bordered walk would lead many more to its doors.

The Custodian begs to express his appreciation for the friendly interest in the Sierra Club and the Le Conte Memorial Lodge shown in many accommodating ways by the Superintendent of the Yosemite National Park, Major W. T. Littebrant; the Supervisor, Mr. Gabriel Sovulewski, and their soldier and civilian assistants; and to all the concessionaires in the Yosemite the same expression of appreciation is extended.

The Custodian was shown the historic cabin occupied for several years by the President of the Sierra Club near the junction of Tenaya Creek and the Merced River. It was found overgrown with shrubbery and almost inaccessible, and in such a condition as to most eloquently suggest its restoration as a habitable cabin and as a noted landmark of the Yosemite. Therefore, it is respectfully recommended to the Directors of the Sierra Club that steps be taken to build a path to the John Muir Cabin and that the cabin be placed in proper order. One day's work by the Outing Party of 1914 would accomplish this.

HAROLD FRENCH, *Custodian.*

The Committee learns with much appreciation of the andirons made for the Lodge and to be presented by the California School of Mechanical Arts. Remembrances of this sort add to the attractiveness of the Lodge and evidence tangibly the appreciation of those who have enjoyed its hospitality. Respectfully submitted,

LYDIA ATTERBURY,
J. N. LE CONTE,
E. T. PARSONS, *Chairman,*
Le Conte Memorial Committee.

NOTES AND CORRESPONDENCE

In addition to longer articles suitable for the body of the magazine, the editor would be glad to receive brief memoranda of noteworthy trips or explorations, together with brief comments and suggestions on any topics of general interest to the Club. Descriptive or narrative articles, or notes concerning the animals, birds, fish, forests, trails, geology, botany, etc., of the mountains, will be acceptable.

The office of the Sierra Club is Room 402 Mills Building, San Francisco, where all Club members are welcome, and where all the maps, photographs, and other records of the Club are kept.

The Club would like to secure additional copies of those numbers of the Sierra Club Bulletin *which are noted in the list in this number as being out of print, and we hope any member having copies will send them to the Secretary.*

Activities of the California Botanical Society

The California Botanical Society, organized in April, 1913, with Dr. W. L. Jepson as president, reports a busy and profitable half year. The Society desires to promote botanical knowledge in a genuinely scientific spirit, at the same time the ornamental and esthetic aspects of plant study are not overlooked.

The society's activities include lectures by expert botanists, field trips, and exhibits for the purpose of familiarizing the members with California plant life. At present some members of the society are organizing a study class and will devote all possible time to increasing their scientific information under the direction of a trained botanist.

Two lecturers of note have appeared before the society recently: Dr. E. P. Meinecke of the United State Bureau of Plant Industry, who gave an illustrated lecture on "Forest Trees and Their Diseases," a very instructive discourse which was highly appreciated by the listeners; and Prof. Dr. Carl Schröter of Zurich, who spoke on "The Flora of the Alps," showing a large number of excellent stereopticon views. This fine lecture will be published with illustrations in the first journal of the Botanical Society, to be issued in April.

Prof. Schröter came as a member of the International Phytogeographic excursion which visited the Bay region in September. The society embraced the opportunity for entertaining the entire personnel of the excursion at a banquet at the Hotel Oakland. Seventy-five members and guests were present at the dinner, and several hundred persons listened to Prof. Schröter's lecture. It was a notable occasion on account of the presence of many famous botanists, among them Dr. Engler of Berlin.

Several excursions have been made to nearby points to study plants in their native habitats. In October an exhibit was held at the Oakland Public Museum, where 300 species of native plants were shown in flower or fruit.

Mrs. D. W. de Veer, *Secretary.*

IN MEMORIAM

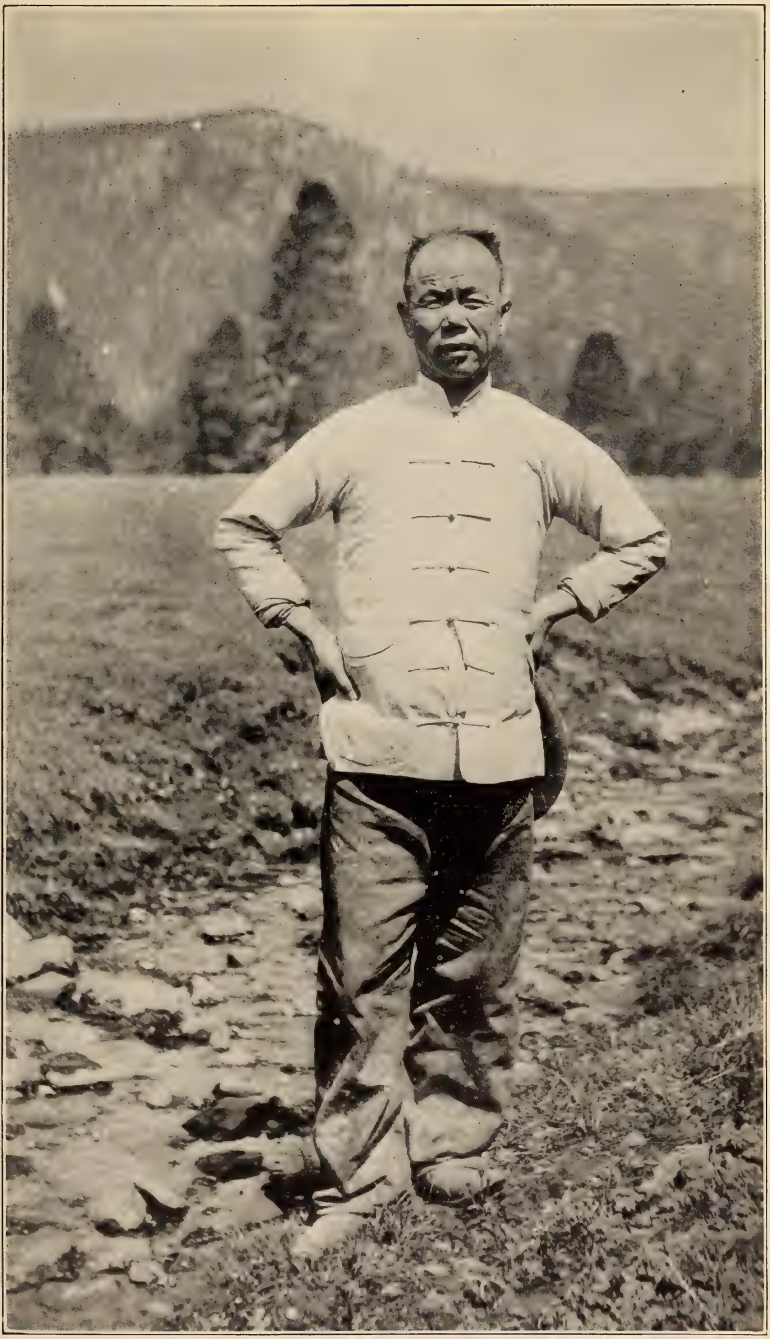
Every one of the hundreds of members who have been on the Sierra Club Outings will learn with deepest sorrow of the death of Charley Tuck. For the information of those who have not participated in any of the Outings it should be stated that Charley Tuck has been the head cook on all of the thirteen annual Outings which the Club has taken. Not only did he fill this position in a most satisfactory manner—being faithful in the highest degree, exercising rare judgment in the conduct of his work, and possessing remarkable executive ability in planning and directing others under his supervision—but he made for himself a place on the Outing and in the hearts of those who came to know him that was exceptional for one of so different a race. It will be possible to secure others who can cook as well, and with experience they may even be able to fill his place in most other respects, but all who knew Charley will realize that his genius for getting along with people was unique and that we can never replace the jovial, good-hearted soul who entered into the spirit of the outdoor life with such zest, and who preserved a calm, unruffled spirit through every adversity and met difficult situations with such serenity of mind and yet who had such a fund of humor as to endear himself to all.

Charley Tuck came from the province of Canton, China. His name was registered as Toy Teak, but he soon gained the sobriquet of Charley Tuck among his American friends. He cooked for country hotels and finally for Ahwahnee station on the old Wawona route to Yosemite. By rare good fortune the Club accidentally hired him to cook for the first Outing in 1901, and his service proved so valuable that we made it worth his while to come with us each year since. We shall never forget his faithfulness shown on many occasions and under most trying circumstances. The day he was lost and rode alone thirty-two miles over snow and mountain passes, arriving at the Merced Cañon camp at 8:30 in the evening, long after dark, bringing food because he thought we could not cook without his aid, is only an example.

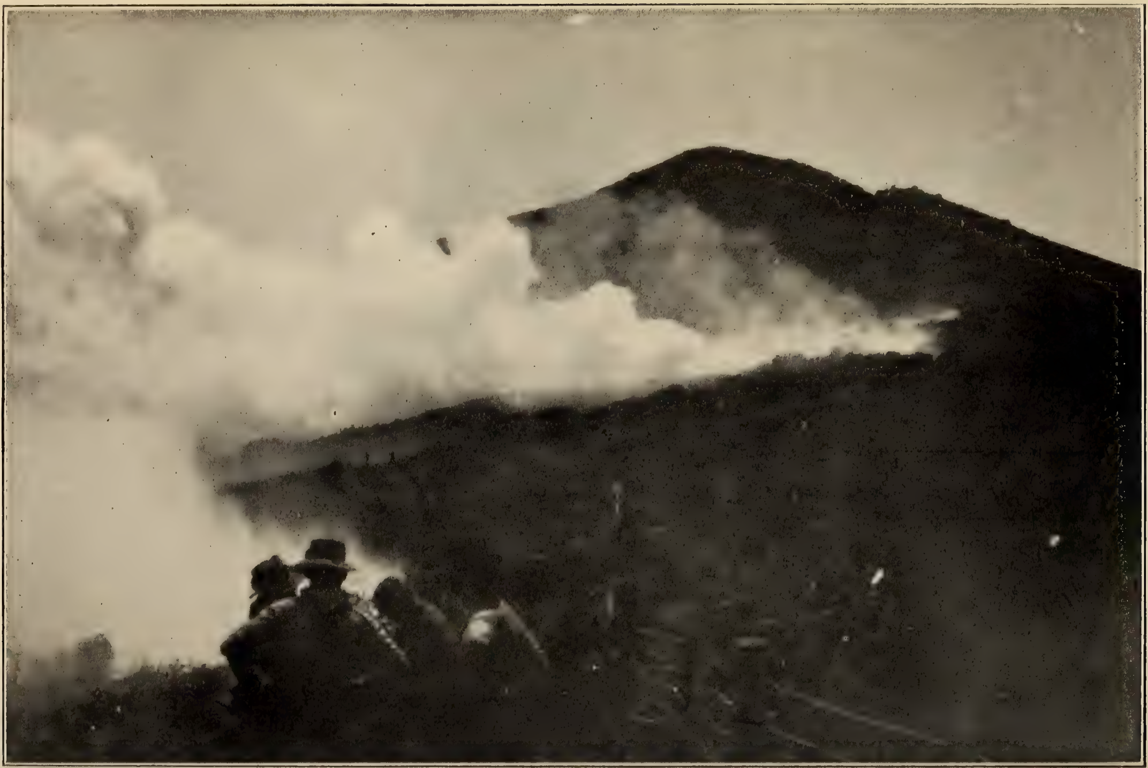
He was cooking for the Raisin Gun Club when taken ill, and died in the Fresno County Hospital, January 2, 1914.

He must have been between fifty-five and sixty years of age. His friends say that he leaves a dependent wife and son in China.

We can get other good cooks for the Club Outings, but we can never get another Charley Tuck. W. E. C.



CHARLEY TUCK, KERN RIVER OUTING, 1912.
Photo by Everett Shepardson.



PHOTOGRAPH OF THE MT. TAMALPAIS FIRE, 1913.

FIRE PREVENTION ON TAMALPAIS

By FREDERICK E. OLMSTED

Forester for the Tamalpais Fire Association

The disastrous fire on Mount Tamalpais last summer has had one excellent result. Measures are now being taken which will make a recurrence of such a conflagration impossible.

The story of the big fire is too well known to need repeating; but the lessons to be drawn from it are extremely interesting and should be emphasized over and over again. As in the case of every serious forest or brush fire the great mistake occurred at the very beginning. The fire was not put out at the start. When a fire is small it is easily controlled and squelched. After it has spread, fanned by violent winds, whole armies of fire fighters are of little avail. A brush fire, by the way, is never out until it is *cold,* a fact which is too often disregarded with dire results.

This particular fire could have been nipped in the bud and frozen at the outbreak if the machine for just that purpose had existed and acted. There was no such machine. The big fire was the outgrowth of one or two little fires which were fought and apparently conquered by volunteer fighters, chiefly employees of the Mount Tamalpais Railroad. The railroad, by the way, is always on the job when fire breaks out and gives freely of its men and resources in emergencies. Last August this crooked road dug into its pockets for something like $10,000 before the fight was finished, a fact which the public should bear in mind. However, fire fighting was an incidental duty to railroad section men; they had their regular work to perform and went back to such work when they thought the little fires had been put out. The fires were not out. When this became evident and the section men were thrown back to fire fighting work they found conditions beyond their control and were obliged to call for assistance.

From then on the story is simply one of the rapid spread of the fire, involving a constantly greater fire line to hold in check, and repeated calls for more and more men to do this work. At this stage of the proceedings another lesson became clearly evident. As soon as the fight drifted out of the hands of the section crew and its boss, there was no boss. Or, what was still worse, there were numerous bosses, each one knowing precisely what should be done and no two of them agreeing about it. As a consequence the attacking forces became a hodge-podge of individual effort without orderly direction or plan, resulting in fatal delays, wasted work and indescribable confusion. Out of this chaos order was slowly restored, first through a citizens' committee in Mill Valley acting in co-operation with Mr. Runyon of the railroad, and, later on, through the good offices of the United States Army, working under the advice of the District Forester, United States Forest Service. By that time some four or five thousand men were endeavoring to put out a fire which, before it ran its course, involved a total loss of nearly $50,000. If half a dozen well equipped men had been on hand at the start, and if these men had stuck to the fire until it became cold, there would have been no loss whatsoever. Even at a later stage, after the fire had gained considerable headway, it could have been subdued without great loss of money and labor if it had not been for the lack of recognized authority, organization and equipment.

The best time to fight a brush fire is before it starts. This is further illustrated, moreover, by the great difficulty the fire fighters had in getting to the fire and in fighting it promptly when they did get to it. The trails of the region were few and far between and in poor condition. To reach the fire, therefore, it was often necessary to cut one's way up and down hill through the chaparral, and this, needless to say, is about the hardest work in the world and exceedingly slow work. To check a brush fire it is usually necessary to cut a line around it, using this line as a base from which to smother the flames; and it sometimes becomes necessary to backfire, in which case a cleared and cleaned strip which completely "corners" the fire is absolutely essential. There were no such strips or fire trails ready made and their construction involved a priceless loss of time and energy.

Efficient protection against fire in forest or brush calls for a ready-made organization, a directing head, quick communication by telephone and trail, lines already cleared from which to fight, and organized forces of trained fire fighters under definite leadership.

The Tamalpais Fire Association exists to give systematic protection against fire to some 40,000 acres of mountain land in the Tamalpais region. That much is planned for at the start. Later on, it is probable that the system will be extended to all the forest and brush lands of Marin County. Moreover, when the results of this practical example are visible on the ground, it is not unlikely that similar associations will be formed in other parts of California, wherever conditions are much the same.

Briefly stated, the Association is establishing a paid organization devoted to fire prevention, including a general manager (the forester), patrolmen, lookouts, and fire-fighting forces. It is building fire trails, so planned as to make the whole region easily and quickly accessible, and to afford suitable lines from which to fight fire. It is building extensions to existing telephone lines for the purpose of obtaining quick information about the start and location of fires. It is storing supplies of fire-fighting tools at convenient points all through the district so that the necessary implements may be right on the spot when fire occurs. Finally, it is organizing and training the best available fire-fighting forces of the locality.

The Forester, as the executive officer, has a free hand in the organization and administration of the Association's work. In case of fire his authority is supreme. Under him, during the danger season, are the patrolmen who will be stationed at strategic points on or near the mountain from which they may quickly discover fire when it starts and from which they may quickly get to the fire after it is discovered or reported. There will be a lookout on top of the mountain, always watching for smoke and reporting it by telephone to the nearest patrolman without delay.

A most important part of the protective system will be the detailed organization of all available fire-fighting forces in the locality. Such organizations will be formed, for example, in Mill Valley, Corte Madera, Larkspur, Kentfield, Ross, San Anselmo, and Fairfax. In each town will be a resident agent of the Association whose duty it will be to gather and forward men, tools, and supplies in case of fire. He will have a roster of the best men available in his vicinity for fire-fighting work, and these men will have agreed beforehand to fight fire when called upon under certain definite terms as to pay. This agent will have tools and food supplies at his immediate disposal and will forward them to the fire-fighting line as directed by the officer in charge. He will not leave his station in town during a fire. His job will be not to fight fire but to assemble and forward the means of fighting it.

In all such towns, also, will be a crew leader who will be the boss of the fire-fighting forces gathered from his vicinity. He will be a man thoroughly experienced in fire-fighting work, will command the confidence of his men, and his authority will be clearly understood beforehand.

In the past, much costly delay has resulted from the fact that no tools were on hand with which to fight fires. To avoid this supplies of shovels, axes, brush hooks, lanterns and other fire-fighting implements will be stored in boxes or cabins at convenient points all through the district, so that wherever fire breaks out the means of fighting it will be right on the ground.

Fire trails are indispensable. Their construction will be spread over a period of three years and at the end of that time about seventy miles of line will be completed. They will be built, for the most part, on the tops of ridges, will be of varying width, and will be cleared of brush and all other inflammable material. When once constructed it will not be a difficult or expensive matter to keep them clean. Fire trails serve two important purposes. They furnish lines of communication over which to rush men, tools and supplies in case of fire, affording ready and quick access to all parts of the region; and they form excellent and very necessary bases from which to fight fires, making safe ground from which to backfire if that becomes necessary.

As a matter of course, much educational work will be done. Trails and camping places will be posted with conspicuous notices calling attention to the danger from fire, urging caution in the use of fire, and giving specific directions about what to do if fire occurs. Literature on the subject will be given out in such form as readily to attract the eye and impress the mind.

For the first three years the cost of this work will be in the neighborhood of $7,000 a year. Thereafter, when the construction work is completed, the cost will fall to about one-half that sum. The bulk of the needed money is already arranged for, and the scheme of financial co-operation is the most interesting part of the whole plan. Although the Tamalpais region is privately owned it is, nevertheless, in the nature of a vast public recreation ground. For this reason it is fitting that a part of the expense for protection should be defrayed by the public enjoying the use of the lands and a part by the property owners within the district concerned. Nearly half the necessary funds, therefore, will come from membership dues in the Association, the remainder being drawn from the property owners, from various of the towns in the danger zone at the foot of the mountain and, perhaps, from the county. Incidentally, one or two public spirited citizens have made substantial voluntary contributions.

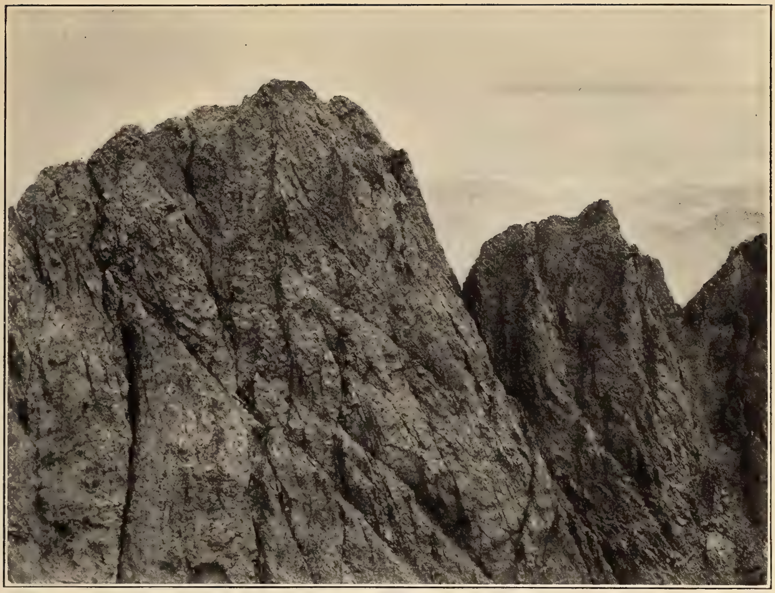
The work of the Association is unique, not so much in the protective methods to be used as in the remarkable co-operation between the many different interests through which the protection is made possible. It is the first practical example in the United States of the application of intensive methods of fire protection to a solid block of country privately owned and publicly used, the actual landholders representing extremely varied interests. The form of management which may ultimately supercede the Association is, of course, a matter of conjecture. It is quite possible, for instance, that the organization may later on become of a public or semi-public nature, a state of affairs which could be brought about through proper legislation and decided changes in other directions. In the meantime the Association aims thoroughly to establish the protective system as planned and to maintain it at a high point of efficiency. This done, and a visible example afforded of what systematic effort can acomplish, the future of the work is secure regardless of what particular agency may carry it on.

First Ascent of the Devil's Crags—Chas. W. Michael

On July 21, 1913, I left my camp on the headwaters of Rambaud Creek to try for the summit of the Devil's Crags, and after scanning the north wall of the mountain carefully, concluded that it was not feasible. I went on across the pass west of the peak, turned east and climbed a peak just south of the main peak, where I obtained a good view of the south wall. This seemed to be the only possible route, so I decided to make a try. I reached the summit at twelve o'clock after a difficult climb up a very narrow chimney. I came out on the knife-edge about 100 yards east of the highest point.

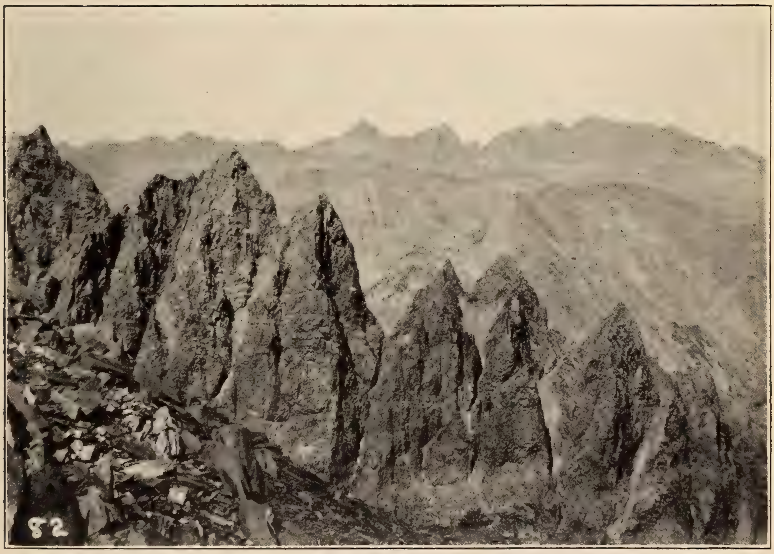
The whole summit is nothing more than a very sharp knife-edge. I stayed on the summit till one P. M., and returned by the same route, arriving at the base camp at four P. M.

I discovered an old trail leaving Grouse Meadow going up Rambaud Creek, and crossing the Black Divide about a half mile east of the Devil's Crags.



DEVILS CRAGS FROM THE SOUTH. CLIMB WAS MADE UP CRACK TO LEFT OF SUMMIT.

Photo by Chas. Michael.



DEVILS CRAGS IN FOREGROUND—PALISADES IN DISTANCE.

Photo by J. Floyd Place.

MIDDLE PALISADE FROM OBSERVATION PEAK.

DEVILS CRAGS FROM PALISADE CREEK.

Photos by Chas. Michael.

MT. RAINIER 14,408 FEET HIGH

The height of the summit of Mt. Rainier, Washington, has been determined by the United States Geological Survey to be 14,408 feet above mean sea level. This elevation now officially displaces the former supposed height of the mountain of 14,363 feet and accords to Mt. Rainier the distinction of being the second highest mountain peak in the United States, Mt. Whitney, California, being the highest. The correct height of Rainier was determined by a party of topographic engineers of the Survey in connection with the mapping of the Mt. Rainier National Park, which was completed last summer. The topographic survey of the park was begun in 1910 by F. E. Matthes, continued in 1911 by Mr. Matthes and George R. Davis, and finished in 1913 by C. H. Birdseye, W. O. Tufts, O. G. Taylor, and S. E. Taylor.

In the mapping of the summit of the mountain a terrific blizzard was encountered; in fact, two ascents of the upper portion of the mountain were necessary. The first ascent of the upper 4,550 feet was begun at 5 o'clock A. M., August 16th, and dawn broke with every indication of developing into a beautiful day. On reaching the summit the men encountered a terrific gale, clouds enveloped the mountain, preventing observations, and by noon snow began to fall. A descent was attempted, but the party became hopelessly lost in a labyrinth of crevasses, the storm developing into a blizzard. To descend farther was impossible; to remain was suicide. Consequently a return to the crater was ordered, and the men reached it after a two hours' climb, utterly exhausted and nearly frozen. Here they sought shelter in one of the steam caves, where, during the long night they were thoroughly steamed and half frozen in turn. Strenuous measures were employed by the men to keep from falling asleep and freezing to death. As it was, their fingers and ears were badly frozen. Finally, with a rising barometer, they succeeded in descending 9,000 feet to a temporary camp, making the descent in three hours. Here they recuperated and prepared for another ascent, which was accomplished on August 20th, the start being made at 1 o'clock in the morning. Good weather was encountered and the mapping of the entire summit was finished by 1 o'clock.

"If anyone thinks that American glaciers are play glaciers, or that the weather which may be encountered at the summit of Mt. Rainier in August is uniformly balmy and springlike," said Mr. Birdseye, whose fingers and ears were badly frosted, "let him climb Mt. Rainier during one of its summer blizzards. The steam caves in the crater are not the pleasantest places imaginable to spend the night in, but had they not been there, not one of us would be alive to-day to tell the tale."—*U. S. Geological Survey Bulletin.*

NOTE:—The mountaineers of the Pacific Northwest will no doubt jubilate at the above announcement by the United States Geological Survey of the new figure for the altitude of Mt. Rainier. It places that peak close to the top of the list of high mountains in the United States. Mt. Rainier's closest rival on the Pacific Coast, Mt. Shasta, it so happens, has just recently been beheaded by the United States Coast and Geodetic Survey, and now can claim no more than 14,162 feet, that is, 218 feet less than it once boasted. The great volcano of Puget Sound is thus left well in the lead.

A review of the different figures that have been announced in the past for each of the higher peaks of the United States would almost justify one to infer that these summits have a peculiar habit of fluctuating in height from time to time. Both Rainier and Shasta have been notorious for their inconstancy; so much so indeed that it is to be feared that the public will lose faith in the trustworthiness of altitude determinations in general. There is good reason to believe, however, that the last announcements for these two peaks are not likely to be changed again. About Mt. Shasta, perhaps the Coast Survey is the only party able to speak positively; but as regards Mt. Rainier, the Geological Survey feels satisfied that the new figure is the best that can be obtained with modern methods and instruments.

The elevation of Mt. Whitney (14,501 ft.), it may be remembered, was determined by actual leveling, but such procedure would have been impossible on Mt. Rainier, as the most practicable route to its summit leads over many miles of snow and ice, and up a precipitous chute several hundred feet in height. On thawing snow accurate leveling is out of the question, for the instrument cannot be set up so firmly that it will not settle slightly between back and fore sights. To execute this pottering kind of work in freezing weather would entail both hardship and great expense. But the obstacle that would have proved entirely insuperable to levels on Mt. Rainier and led to the abandoning of that method is the dreaded Gibraltar Rock, well known to many who read this magazine. To carry levels up its precipitous side is for practical considerations all but impossible.

It was necessary, in the case of Mt. Rainier, to resort to long-distance methods of angulation. That is to say, sights were taken to its summit from neighboring peaks, six to eight miles distant, the altitudes of which had been carefully determined, and the positions of which with respect to the mountain's summit had been computed from a scheme of triangulation.

It is not possible to execute vertical-angle measurements of this sort with the precision obtainable by leveling; at the same time, by providing a sufficient number of checks and repeating each measurement many times, a result can be attained that can be relied on within a foot or two. And closer than that, the determination of a snow-capped peak, such as Mt. Rainier, need scarcely be; for its actual height is bound to fluctuate by several feet from year to year and even from month to month.

It is gratifying to note how closely the new trigonometric determination of Mt. Rainier accords with the barometric one of Prof. Alexander McAdie (14,394 ft.). It is hoped that this agreement between the results of two fundamentally different methods will strengthen public faith in their reliability, and lead to the discarding of other figures (some of them much exaggerated) that have appeared in print from time to time.

In closing, it may be said, that the Geological Survey's Bulletin little more than hints at the fortitude and pluck of Mr. Birdseye and his party in their almost disastrous experiences on the peak. Survey men are so frequently confronted by peril in their daily work, that they are not apt to write or talk about it, and as a consequence the public seldom learns the intimate details. It is to be hoped that the history of this undertaking will some day appear in full. F. E. MATTHES.

WILL OPEN TRAIL INTO GROUSE VALLEY

Grouse or Paradise Valley is to be opened to the mountaineer and the tourist from the Fresno side by a trail.

This is the plan that Supervisor Paul G. Redington of the Sierra National Forest presented yesterday to the supervisors at a conference to secure their co-operation and financial assistance in trail building in the mountains of this county. The particular trail that he has in mind at this time is the extension of the Tehipite-Simpson Meadow trail into Grouse Valley on the Middle Fork of Kings River.

The trail from Tehipite up the cañon of the Middle Fork to Simpson Meadow, was put in good condition last year, and for the first time safe passage through this cañon may now be made. About six miles above Simpson Meadows lies Grouse Valley, which though accessible by trail from the Inyo county side of the mountains, can be reached from the Fresno county side only by an arduous and somewhat perilous climb. Because of the scenery, excellent horse feed and good hunting and fishing to be found at Grouse Valley, a strong demand has been made for a feasible trail to connect it with Simpson Meadow.

While the proposed trail will be through a very rough and picturesque section, it is estimated by the Forest Supervisor that the trail can be built for about $3,000. Supervisor Redington will allot a portion of the government funds to assist in putting through this trail, and the Sierra Club has volunteered to make an appropriation for the same purpose.

It was brought out in the discussion that because of the cost, the complete trail cannot be built during the coming season, but a considerable portion of it will be built under the direction of the forest service. The supervisors promised co-operation and ordered an allowance of $500 out of the general road fund to be made after July next for this season's work. The Sierra Club and the Forest Service are expected to contribute a like sum.

Supervisor Redington also announced that he will continue the policy of annually adding new "tourist pastures", improving trails and otherwise looking out for the comfort and convenience of the outing public.—Fresno *Republican,* Jan. 10, 1914.

OLMSTED ON HETCH HETCHY

(Editorial Boston *Transcript*, Nov. 19, 1913.)

The *Transcript* to-day presents a discussion of the Hetch Hetchy Valley by Frederick Law Olmsted. By reason of his nation-wide reputation as an expert in all matters of landscape, his opinion upon this important case will command the attention of the public at large, and because of his official position as a member of the National Fine Arts Commission, upon which he has contributed most distinguished service, his word will have weight with Congress. Mr. Olmsted has followed this case with deep interest for several years, and has studied the engineering reports and the various arguments, pro and con, with care, but until now, largely because of his official relations to the Government, he has been reluctant to express an opinion. Inasmuch as those who favor the giving of the valley to San Francisco for a municipal reservoir have been so insistent that the lake thus created would furnish an added beauty to the Yosemite Park, without in any wise detracting from its usefulness and natural charm, and have made this point so prominent a feature of their argument, the *Transcript* asked Mr. Olmsted for his opinion upon it. His article is the first contribution to the discussion of this really fundamentally important phase of the question by anyone fully qualified by professional training to pass upon it. Until now all who have hazarded this point of view have been stigmatized as hysterical "nature fakers." It will be difficult to make the public believe that Mr. Olmsted belongs in that class.

THE SAN FRANCISCO WATER SUPPLY CONTROVERSY AS THE FOREMOST LANDSCAPE AUTHORITY SEES IT

By FREDERICK LAW OLMSTED

The controversy over the bill to grant San Francisco reservoir rights in the Hetch Hetchy Valley seems to turn upon three principal points:

I.

THE EFFECT OF THE PROPOSAL UPON THE VALUE OF THE YOSEMITE NATIONAL PARK

The proponents have claimed that the proposed lake will add to the beauty of the scenery, that the improved facilities for access will further increase the value of the park to the public, and that the losses are so slight that there will be no net damage to the park as a place of public recreation.

The opponents have claimed that the damage to the scenery and the restrictions upon the public enjoyment of the park would be such as to impair its value very seriously indeed.

II.

THE ECONOMIC ADVANTAGES OF THE PROPOSAL

The proponents have claimed that the additional water which will certainly be needed in the course of a few years for San Francisco and other bay cities, and that hydraulic power for which a local use will be found, can be obtained at a much less cost by this project than otherwise. How much less has not been definitely estimated. If there is no offsetting damage to the park, or if it is so slight as to be negligible, as claimed, it is enough to say the economic gain is large without need to ascertain just what it is.

The opponents have admitted the probability of large economic advantages for the project, but since they believe the offsetting damage to be very great they insist that the probable economic gain to the community should be definitely appraised and fairly balanced against this loss before a decision is reached.

III.

TO WHOM SHOULD THE ECONOMIC ADVANTAGES OF THE PROJECT, IF EXECUTED, ACCRUE

The proponents have claimed,—on the hypothesis that there would be no serious damage but rather a gain to the value of the park, on the ground that the cash for executing the project would be furnished by the city, and on the ground that the city has an ownership in fee of a portion of the land to be flooded—that substantially the entire economic advantages resulting from the project should be permitted to accrue to the treasury of the city. And the present bill so provides.

The opponents have claimed—on the hypothesis that the project would result in a great loss to the people of the United States through impairing the value of the park—that substantially the entire economic advantages resulting from the project, if executed, should accrue to the Treasury of the United States, as a recompense for that loss.

WHERE THE CASE HINGES

It will be seen that the fundamental difference arises over the first point.

If it were to be universally admitted that the execution of the project would inflict a really great loss upon the people of the United States through injury to the Yosemite National Park, the only ground upon which the present bill could be advocated is that the taxpayers of San Francisco are for some reason entitled to a large subsidy from the citizens and taxpayers of the rest of the country. This is not seriously claimed by anyone.

If on the other hand it can be established that the project would, upon the whole, involve no real and substantial depreciation in the value of the park as a place of public recreation, the development clearly ought to be permitted; and the question would then be whether the highest economic use of all available resources is to be secured by appropriating the waters of the Tuolumne mainly to the use of San

Francisco, or by applying them to additional irrigation in the Tuolumne region and using for San Francisco one of the other sources of water supply available for that purpose.

The whole case largely hinges upon the answer to the question of whether the project would or would not seriously depreciate the value of the Yosemite National Park for the purposes to which it has been dedicated.

I think I approached the matter with as little prejudice as a man, sufficiently informed to be a competent judge, well could have; because I did so with two general principles uppermost in my mind, one of which pointed a priori to the assumption that the valley ought to be used for water works purposes, the other that it ought not.

COMBINING TWO USES

The first principle is so well set forth by Mr. Allen Hazen in Mr. John R. Freeman's report to the city of San Francisco that I cannot express my own thoughts better than by quoting what he says, with the addition of a single word, in square brackets, to qualify the universality of its application:

> Granting the desirability of keeping certain areas free, or substantially free, from population, for the purpose of drawing public water supplies from them, and of keeping certain areas free from population for the purpose of using them for parks, the park areas being selected with reference to their natural beauty and facilities for camping and use by the people, there seems to be no reason why these two classes or areas should be kept separate. [Ordinarily] the use of an area for one purpose does not interfere appreciably with its use for the other purpose, and from the standpoint of conservation and the fullest use of the resources of the country there is every reason why the two uses should be combined as far as it can be done advantageously, and the same area used for park purposes and for water supply purposes.

I have urged this principle again and again, and have done not a little in helping to put it into practice. Where water supply is the prime purpose to be served it is very often possible to secure incidentally important means of public recreation of certain kinds at a very slight additional cost and with no impairment of the water supply function whatever, thereby reducing the extent and cost of park facilities that need to be independently provided. Not infrequently land acquired and policed primarily for park purposes may serve incidentally to protect the purity of a water supply, or may afford rights of way for water works or sites for reservoirs, with no impairment of their park value or even with actual increase of park value; while the economy thus effected in the waterworks may also justify the expenditure of water supply funds for the accomplishment of additional park purposes, as in the costly and interesting scenic road proposed by Mr. Freeman for the Hetch Hetchy.

UTILITARIAN AND ÆSTHETIC VALUES

The other principle is much harder to state clearly, but is equally sound and equally important. It is based on the fact that the value of any object of beauty, whether mainly natural or mainly a work of art, depends upon the cumulative effect in combination of innumerable details which may appear individually to have but little significance, and the fact that where an alteration is proposed in certain details of such an object of beauty, it is much easier to perceive and to set forth clearly and convincingly the utilitarian advantages or disadvantages of the change, than it is to perceive and set forth clearly the artistic advantages or disadvantages. Not only that, but whereas each one of ten possible changes might produce a utilitarian gain (or loss) of $100, and their total utilitarian gain (or loss) be $1000, the cumulative effect of the ten changes upon the beauty of the object is apt to be enormously more than ten times the effect of any one of them.

In most of the objects with which we are concerned beauty is, and ought to be, an absolutely incidental factor. We want only that sort and degree of beauty which is compatible with a high degree of utilitarian efficiency. Some things, however, are of value wholly or primarily for their beauty, and if they have any direct utilitarian value it is utterly secondary and incidental. The extraordinary difficulty of balancing artistic gain and loss against utilitarian gain and loss in detail, and the manifest weighting of the scales in favor of the utilitarian side whenever this process is followed, make it important to segregate sharply from the vast majority the things of this latter class. The first question in regard to any one of these things, valuable primarily for their non-utilitarian beauty, is—can we afford it? If not, we give it up; sell it to someone who can afford it, or else transfer it to the class of things in which the beauty-value is secondary to the use-value. If we can afford it, we direct our efforts toward conserving and making available its primary value, its beauty, just as far as we can afford to do so, never subordinating it to considerations which we have decided to be secondary in this particular case.

THE BURDEN OF PROOF

Beauty of scenery is ordinarily and properly an incident, a by-product in man's use of the earth, but certain kinds of valuably refreshing scenery are so incompatible with the ordinary economic uses of land in and about large cities that, if they are to be made available for the use of the citizens at all, certain tracts must be given over specifically to that purpose, even at a considerable cost. It may be a question in any given case whether the game is worth the candle, and of course the incidental use of the same land for other non-conflicting purposes will always help to lighten the burden, but until it is deliberately concluded that the value of the landscape beauty is no longer the prime justification for the maintenance of the park, the only safe rule is to permit no other avoidable use of its land which in any degree impairs the value of the park for that purpose. The argument that to place a pumping station in a city park will injure its scenery only a little, and will save buying a site outside, spells ultimate ruin for the quality of the park scenery, through cumulative injuries, each supported by the same argument.

The same principle applies to parks remote from cities which have been definitely set aside for the purpose of preserving for public enjoyment scenery of especially precious and valuable sort, or especially subject to injury by commercial exploitation. When it is proposed to use such a park for a different purpose, the advocates of the new project must bear the burden of proving that the new use will not impair the scenery.

This principle is the necessary complement to the principle of combining park and water supply functions, if beauty of scenery is not to be pushed to the wall at every point of conflict in detail by the more obvious claims of utilitarian advantages. It was with these two principles equally in mind that I addressed myself to the question of what effect the Hetch Hetchy dam project would really have upon the quality of the scenery; anxious to justify the use of the valley for water supply if compatible with the park values, but determined not to shut my eyes to any real injury if it should appear inevitable.

THE YOSEMITE'S DISTINCTIVE CHARM

My conclusion is that the proposed reservoir would effect an enormous injury to the scenery of the Hetch Hetchy Valley and a very serious permanent loss in the total value of the Yosemite National Park for the purposes it was created to serve.

Some of the grounds of this conclusion I will state as briefly as I can. In the first place, what my father wrote years ago about the Yosemite scenery in general applies specifically to the scenery of the Hetch Hetchy, namely:

The distinctive charm of the scenery of the Yosemite does not depend, as it is a vulgar blunder to suppose, on the greatness of its walls and the length of its little early summer cascades, the height of certain of its trees, the reflections in its pools, and such other matters as can be entered in statistical tables, pointed out by guides and represented within picture frames. So far, perhaps, as can be told in a few words, it lies in the rare association with the grandeur of its rocky elements, of brooks flowing quietly through the ferny and bosky glades of very beautifully disposed great bodies, groups and clusters of trees. In this respect, its charm is greater than that of any other scenery that, with much searching, I have found. There is nothing in the least like it in the Cañon of the Colorado, sometimes foolishly compared with the Yosemite. I felt the charm of the Yosemite much more at the end of a week than at the end of a day, much more after six weeks when the cascades were nearly dry than after one week, and when, after having been in it, off and on, several months, I was going out, I said, "I have not yet half taken it in."

To substitute an expanse of water for the sylvan landscape of the valley floor would wipe out of existence that apparently minor element of the Yosemite scenery which makes its charm unique in all the world. It would change it into a sort of imitation of the scenery to be found in certain sea coast fiords, not without great impressiveness indeed, but a radically different and far less rare and precious thing than is the existing scenery.

UNSIGHTLINESS—MUDFLATS

That is the crux of the whole matter as far as concerns the value of the park. It does no harm to point out that in the second place, apart from the incalculable importance of the foreground and surroundings provided by the landscape of the valley floor in contributing to the impression that is made upon the visitor by the scenery as a whole, the best views are unquestionably those to be obtained from the level of the valley floor at a short distance from the base of the cliffs looking up, whereas with the reservoir the views, except from boats, are to be obtained almost exclusively from above looking down or from a road cut out of the rocks part way up on one side of the valley and looking across.

It is also true, in the third place, that the proposed body of water would not be a normal mountain lake but a reservoir regularly subject to depletion, leaving a margin of unsightly banks and mudflats exposed along a considerable part of the shore except for brief periods of high water not occurring every year. It is true that the shores at high-water mark are generally steep and that the water would be highest in summer when the greatest influx or visitors will always occur; but a careful study of the fluctuations in water level which would occur under the conditions indicated by the mass curves for a seventeen-year period (not including the dryest periods on record) as given in Mr. Freeman's report and of the topographical data given by him, makes it certain that the unnatural and disagreeable appearance of a partially depleted reservoir would be apparent by far the larger part of the time, and that even in the summer months this effect would be apparent to such a degree and for such lengths of time as seriously to mar the enjoyment otherwise derivable by the public from the appearance of the reservoir. At the best the water would begin to fall during the summer months and not fill up again till late in the spring. At the worst there would be about three square miles of bottom exposed and only one square mile of water, the water remaining more than fifty feet below high water mark for a year and a half.

VARIETY AND PECULIARITY OF SCENERY

Maybe the draft upon the reservoir would be less than that assumed by Mr. Freeman and the fluctuations slighter; maybe the draft would be more or the rainfall less and the exposure of the muddy bottom worse. But it is not essential to go minutely into these details to or weigh the claim that the necessary sanitary regulations would interfere seriously with camping in the Park, a matter that seems to me to have been somewhat exaggerated by the opponents of the reservoir project. The vital point is that the making of the reservoir at all would essentially alter the character of the scenery for the worse.

It has been urged that even if the presence of a large, fiord-like body of water would not be an absolute improvement to the Yosemite scenery, its occurrence in part of the Park would lend a desirable variety to its scenery as a whole. I am never unmindful of the advantages of variety; I am well aware that to be able to point out all other obviously different landscape features in the vicinity would provide another excursion and hold many visitors longer in the Park, and might, other things being equal, attract more people to it in search of enjoyment; just as it is certain that the establishment there of a well conducted resort for purely social and gregarious pastimes, especially if provided with a good gambling casino like those in many popular European resorts, would attract enormously larger numbers to the Yosemite, and give to many of them resources of enjoyment which they would rank higher than those of the natural scenery; but any of these kinds of advantages would in my opinion be purchased at far too high a price by impairing the full enjoyment of these landscape qualities which, in all the world, are peculiar to the Yosemite scenery, which are even now seen and appreciated by considerable numbers and which in the next few centuries will, I believe, become of incalculably larger value to humanity.

SCENERY IN THE TWENTIETH CENTURY

I acknowledge that it is fairly debatable how much of this commodity called Yosemite scenery the world will be able to put to effective use as the centuries go by, and acre by acre the lands of all the earth must be put to more and more intensive use. It is debatable how much such land the world can in the long run afford to segregate for the sake of its highest recreative values when those come into conflict with the full economic use. The last century, however, has shown such an enormous increase in the appreciation of and resort to the wilder and less man-handled scenery as a means of recreation from the intensifying strain of our civilization, and the amount of that scenery is so rapidly shrinking that it is a very rash and unconservative thing, in the present time of transition to abandon or to make over into an essentially different thing any piece of such scenery that has once been deliberately set apart, to be saved, as a sample for the use of posterity.

The number of people who now visit the Hetch Hetchy, or even the portions of the Yosemite Park which have been rendered more easily accessible, is no measure of the extent to which its scenery will be enjoyed throughout the twentieth century, and the crowded centuries to follow it. What my father wrote in his report on the Yosemite in the sixties points this out very clearly:

> It is an important fact that as civilization advances the interest of men in natural scenes of sublimity and beauty increases. Where a century ago one traveler came to enjoy the scenery of the Alps, thousands come now, and where even forty years ago one small inn accommodated the visitors to the White Hills of New Hampshire, half a dozen grand hotels, each accommodating hundreds, are now overcrowded every summer. In the early part of the present century the summer visitors to the Highlands of Scotland did not give business enough to support a single inn, a single stage coach or a single guide. They now give business to several railroad trains, scores of steamboats and thousands of men and horses every day. It is but sixteen

years since the Yosemite was first seen by a white man, several visitors have since made a journey of several thousands of miles at large cost to see it, and notwithstanding the difficulties which now interpose, hundreds resort to it annually. Before many years, if proper facilities are offered, these hundreds will become thousands and in a century the whole number of visitors will be counted by millions. An injury to the scenery so slight that it may be unheeded by any visitor now, will be one of deplorable magnitude when its effect upon each visitor's enjoyment is multiplied by these millions.

IMPROVEMENTS AND PRECEDENTS

The monetary value attached to any object of beauty, whether natural or artificial, by public opinion, even by the opinion of the more intelligent part of the community, is a strangely fluctuating thing. For how many centuries were the most beautiful buildings of classic civilization regarded by the best minds of Europe as having no value higher than as stone quarries. What ruinously wasteful destruction was committed with entire self-approbation in the name of "improvement" during the period of the Renaissance upon the wonderful artistic inheritance from the Gothic period. What splendid gardens of the Renaissance were exultingly swept out of existence in the first flush of the fashion for informal landscape that came with the growing appreciation of the beauty of nature in the eighteenth century. The lesson of history in this respect is unmistakable; a thing which many people have held to be of great and peculiar beauty and which cannot be replaced, even if the predominant men of the day fail to appreciate its beauty or are inclined to think its beauty would be increased by "improvements," ought not to be destroyed or radically altered except under pressure of unavoidable necessity or after the most deliberate searching and humble inquiry as to whether the predominate opinion of the day is really right or is perhaps a passing phase colored by unconscious prejudice.

The United States deliberately undertook to preserve the scenery of the Yosemite National Park intact for the enjoyment of all future generations.

The people of the United States are not yet so poor that they cannot afford to persevere in this purpose.

To use the Hetch Hetchy as a San Francisco reservoir site would be to abandon that purpose by indirection, and would establish a precedent for abandoning the purpose of any and every park in case it conflicts with any considerable utilitarian interests.

MAZAMAS

The Mazamas ushered out the final days of 1913 with a ski party on the south slope of Mt. Hood. Fifteen members of the Club left Portland the morning of December 27th, and traveled by train to Bull Run, where stages met them, transporting the party and equipment to Rhododendron Inn, ten miles from Government Camp. Here they were met by Elijah Coalman, veteran Mount Hood guide, with skis. Three days were spent in the deep snow at Government Camp, where under the tutelage of Mr. Coleman some of the party became adept at the sport. A watch party and Christmas tree was held at Rhododendron Inn New Year's Eve, at which there were a great many backwoods people. A burlesque performance was staged by members of the party. H. H. Prouty, President of the Mazamas, and J. E. Bronaugh, Vice-President, were members of the outing party, which was led by Osmon Royal, Jr.

One of the events planned for early summer by the Mazamas is a flying trip on July 4th to Crater Lake. The outing will be made by special train to Medford and by automobile to the lake and return.

The twenty-first annual outing of the Mazamas has been set for August 1st to August 16th and the north side of Mt. Rainier will be the objective. The Mazamas have not visited Rainier since 1905, when the Sierras and Mazamas held a joint outing in Paradise Park, south side of the mountain. The 1905 outing was the largest and most successful in the history of the organization. The 1914 outing is expected to prove quite popular, and inquiries from members of other mountaineering organizations are already being made. The north side ascent offers opportunity for considerable real mountaineering. Permanent camp will be made between the Winthrop and White River Glaciers, the route to the camp being twenty-two miles by trail from Fairfax.

MOUNTAINEERS

The winter outing of the Mountaineers was held at Mt. Rainier. Leaving Tacoma December 28th, the party walked from Ashford to the National Park Inn. Snow conditions were much easier than the previous year, there being only about six inches on the trail and road. Those having no snow-shoes followed a trail to Paradise Valley under the leadership of Mr. John Reese, and the ladies who accompanied him had the honor of being the first women to spend a winter night in Paradise. The men of the party stayed in Reese's cabin and the women in the Ranger's cabin. The party on snow-shoes went first to Van Trump Park, and later to Paradise, where a small party climbed to McClure's Rock. One splendid trip was to the Nisqually Glacier, guided by Professor Flett. The New Year was welcomed with the usual ceremonies and the outing was another most successful one.

Washington's Birthday will be spent at Scenic Hot Springs. A two-day outing has been planned and is in charge of Mr. P. M. McGregor.

The Everett Mountaineers conducted a most successful New Years Day outing in the snow at Index.

YOSEMITE, CALIFORNIA, November 20, 1913.

MR. WM. E. COLBY,
Secretary Sierra Club,
San Francisco, California.

MY DEAR MR. COLBY: On October 30th last there were planted in the Yosemite Valley some 150 seedlings of Sequoia Washingtoniana (Gigantea). These had been secured for the purpose by Mr. Paul G. Redington, Supervisor of the Sierra National Forest, at the request of Major Wm. T. Littebrant, Acting Superintendent of the Yosemite National Park. In order to insure the success of the undertaking, Mr. Ernest G. Dudley, a forester, experienced in the rearing of young sequoias, was detailed to superintend the planting and advise as to suitable locations for the trees.

The scheme of planting, it should be understood, was by no means a haphazard one, a careful survey of the Valley having first been made with especial reference to soil, light, and other conditions for growth. Pains were taken, also, to avoid an arrangement that might interfere with the natural aspect of the Yosemite landscape. The plan finally adopted was that of a gracefully winding avenue, flanked by groups of sequoias. The road selected for the purpose was the one leading from Yosemite Village up the middle of the Valley floor to what is locally known as Kenneyville.

Nor shall it be said that no eye was had for the future—the very distant future, even—when the trees shall have attained a height of some 200 feet and measure twenty feet across at the base. In no place are the trees set less than eighty feet apart, while the width of the avenue is 104 feet throughout.

It occurred to the writer, for one thing, that a cluster of big trees about Le Conte Memorial Lodge would be especially appropriate and certain to be appreciated. The matter was laid before Major Littebrant, and he, with characteristic enthusiasm and promptness, at once directed Mr. Dudley to select six particularly fine specimens to be set about the Lodge.

At half-past four in the afternoon, a party composed of Major Littebrant, Mr. and Mrs. Dudley, Mrs. Matthes and the writer, met at the Le Conte Memorial Lodge and there together laid out a crescent about the building having a radius of about 100 feet. Mathematical exactness of symmetry was not deemed desirable in the scheme, but rather a selection of sites particularly promising for the healthy growth of the young trees. Accordingly, the distances between them are not uniform, but range from sixty to 100 feet.

Another locality in the Yosemite Valley that was specially favored with sequoia seedlings is the school house. The day following the planting at the Le Conte Memorial Lodge, two little sequoias were set out, one on each side of the school children's garden, in the presence of Miss Ora Boring, the teacher, and all the children. We may rest assured that these baby big trees will be well cared for.

Of the sequoia seedlings that were left over, several were planted along the edge of the woods on the south side of the Valley, from Yosemite Village southwestward, while at the road forks near Galen Clark's former residence, seven were set in a group. Further, by way of experiment, some handfuls of sequoia seed were planted at various places along the Pohono trail from Glacier Point westward. The localities in each case were selected by Mr. Dudley and marked so they may be easily recognized. A handful of seed also was taken by the writer to the Little Yosemite Valley and there divided among three spots that seemed particularly favorable. Each place was marked by a few stakes and a large ring of cobble stones. There is no certainty, of course, that any of this seed will germinate, yet the experiment seemed worth trying.

That sequoias will grow in the Yosemite Valley has already been abundantly demonstrated. The altitude of that locality, it is true, is some 2,000 feet lower than that of any of the neighboring big tree groves; yet the sequoias that have been planted in the Valley in previous years have done remarkably well. The three sequoias at the Sentinel Hotel, the four at the corner of Galen Clark's grave, and the solitary one on Pioneer Lamon's grave are growing up into fine, sturdy trees.

Another guarantee of the successful thriving of the sequoias is found in the presence of magnificent sugar pines in various parts of the Yosemite Valley. These trees, it is well known, require conditions very similar to those needed by the sequoias.

A singular fact, however, is connected with the sugar pine in the Yosemite Valley. On all my rambles through the Valley floor I have seen scarcely a single sugar pine seedling, nor even a young sugar pine still in its teens; yet the mature trees are in a flourishing condition and shed a multitude of cones. The explanation I would seek in the superabundance of squirrels in the Yosemite Valley—they do nor permit a single sugar pine seed to get into the ground. On a recent trip to Wawona, Major Littebrant and myself took occasion to contrast this condition in the Valley with what we saw along the road to Chinquapin. There, hundreds of sugar pine seedlings of various ages may be counted from a single point of view. Right then and there did the Major resolve to have a number of these little sugar pines transferred to the Yosemite Valley.

My last walk in the Valley shows me that he has carried out the plan. In various places along the road from Yosemite Village east to the Le Conte Memorial Lodge, and thence back along the road to the Stoneman bridge; also along the road west of the village, in the vicinity of Galen Clark's former residence and as far as Camp Ahwahnee, one may now see tiny sugar pines, each protected, like the infant sequoias, by three stakes driven into the ground.

Finally, need was found for shade trees along the straight, bleak stretches of road immediately west and north of the village. Here rows of incense cedars were planted, hardy trees that seem to thrive under various conditions, and grow at a rapid rate. Thus it will be seen that a generous beginning has been made toward the beautifying of the Valley floor; a beginning which it is to be hoped will be followed up from year to year.

As the Major well points out, work of this sort really requires the services of an experienced forester, a man thoroughly familiar with the life of the forest, and withal, sensitive to the esthetic qualities of the landscape. It seems strange to reflect that no specialist of this type should ever have been among the employees of the Yosemite National Park, a reservation of more than 1100 square miles, whose main scenic asset lies in its magnificent forests (I, for one, would place these above its mountain sculpture). May the time come soon when the care of the trees in the Yosemite National Park will be deemed a matter of sufficient importance to justify the permanent appointment of a forestry expert to the Superintendent's staff. Had a forester been attached to the Park before this, we should probably not now be bewailing the loss of thousands of fine lodgepole pines through the ravages of insects. Nor would the Mariposa Grove of big trees, the most precious possession of the entire park, have been permitted to develop into an impassable wilderness, dense with thickets in which the seeds of the big trees choke and die. Fortunately, this place, too, has recently been taken in hand by Major Littebrant and has already in part been cleared out. But this, too, is forester's work and should have the supervision of a scientific forester.

And then there are knotty problems related with the large tracts of timber within the park that are owned by lumbermen. These tracts are likely to be slashed and burnt and ruined forever, unless they soon be exchanged, as has been proposed, for other tracts of equal economic but of relatively slight esthetic value. Matters of this sort clearly require the presence of a forester who shall give them the benefit of his special training.

Let us hope, therefore, that this tree planting episode we have just had in the Yosemite Valley may be productive of something besides a few handsome trees; that it may prove to be the first step toward the establishment of a definite system of forest care and improvement such as the situation logically calls for, and such as might well have formed part of the administrative routine of the Yosemite National Park from the first.

Very truly yours,
F. E. MATTHES.

PROTECT THE NATIVE PLANTS

Many attractive flowering plants, ferns, etc., in the neighborhood of towns and summer resorts, are in serious danger of local extermination, or reduction to relative rarity. This condition already exists in many places, and is much to be deplored, as it takes away one of the great charms of wood and field.

How may this danger be averted? Pick only a few flowers instead of a large quantity, thus giving an opportunity for seeds to develop and perpetuate the species. A few flowers skilfully arranged are much more attractive and decorative than masses bunched together. In picking flowers do not pull up the roots of plants. Avoid purchasing wild flowers in the streets and elsewhere, thus checking the incentive to collecting for sale, which in some cases has assumed very large proportions.

Much interest has developed in this matter and the Society for the Protection of Native Plants has been organized to do what it can for the cause through its membership and the publication of leaflets.

Membership in the Society is free to any one interested, and entitles one to receive all leaflets of the society as published. Any one subscribing one dollar a year or upward will be enrolled as a sustaining member. All applications, for membership or leaflets, should be addressed to the secretary,

MISS MARIA E. CARTER,
Boston Society of Natural History, Boston, Massachusetts.

ROBERT T. JACKSON,
President of Society for Protection of Native Plants.

THE CALIFORNIA
SCHOOL OF MECHANICAL ARTS
Founded by James Lick.
Sixteenth and Utah Streets

SAN FRANCISCO, Dec. 3, 1913.

MR. WM. E. COLBY, Sec., Sierra Club,
402 Mills Bldg., San Francisco.

DEAR SIR: We would like to present to the LeConte Lodge in the Yosemite Valley a pair of andirons. I visited the Lodge last summer and took measurements of its dimensions, and the andirons have been made to fit.

It may be that the Lodge will be closed throughout the winter, and if that is the case, we will keep them here until you are ready for them, but it seems best to notify you at this time, in order that you may not make plans for purchasing a set.

Yours very truly,
GEO. A. MERRILL, *Director.*

CONGRATULATORY VOTE AND MEMORANDUM OF THE SOCIÉTÉ PROTECTOIRE DES ANIMAUX DE PARIS (SOCIETY FOR THE PROTECTION OF ANIMALS), REGARDING THE ENACTMENT BY CONGRESS OF A LAW FOR THE EXCLUSION FROM THE UNITED STATES AND ITS DEPENDENCIES OF IMPORTATIONS OF WILD BIRDS' PLUMAGE FOR MILLINERY PURPOSES

(Translation.)

ASNIERES, SEINE, FRANCE, September 18, 1913.

At the monthly meeting of the Society for the Protection of Animals of Paris, held on September 18, 1913, Mons. A. F. Dupont read to the Society letters received by him from Mr. William T. Hornaday, Director of the New York Zoological Park. The Society listened to the statement made by Mr. Dupont of the energetic campaign prosecuted in the United States throughout the past six months, which ended on September 3rd in a complete victory for the protective societies, wherein those societies obtained from the American Senate the prohibition of the importation of wild birds' plumage, and the abolition of the traffic in feathers and skins of slaughtered wild birds, in the United States.

The Society requested the President to express its great satisfaction to the members of the protective societies for this great victory, and convey its heartfelt congratulations to the chief promoters of this world-wide success, i. e.:

First—To the New York Zoological Society and Mr. William T. Hornaday.

Second—To the National Association of Audubon Societies and Mr. T. Gilbert Pearson.

Third—To the New York Women's League for Animals.

Fourth—To the American Humane Association.

Fifth—To the Senators who by main force snatched the victory from defeat, particularly as follows: George P. McLean, George E. Chamberlain, Harry Lane, James A. O'Gorman, Gilbert M. Hitchcock, John Sharp Williams, Thomas P. Gore, Nathan P. Bryan, Augustus O. Bacon and Benjamin F. Shiveley.

The meeting hears the call made upon France by Mr. Hornaday for similar action, and relies upon the Paris Society for the Protection of Animals to begin at once a campaign to secure in France the same victory.

The meeting sends to the National Congress of the American Humane Association, to be held at Rochester, New York, on October 13th, an expression of its fraternal sympathy, and its hope that new victories may crown the labor of the Congress.

Action proposed, supported and obtained by

A. F. DUPONT,
Corresponding Member of the American Association.

NATIONAL PARKS

Extracts from Report of Superintendent of Yosemite National Park. (1913.)

Messrs. Miller and Sullivan, entomologists, Agricultural Department, were engaged during the late spring and summer months in investigating the life history of the pests (needle borer and bark beetle) which are destroying the tamarack pine (lodgepole, *Pinus contorta*) of the park. In order to best accomplish this, they were given a force of men and started work in the vicinity of Lake Tenaya.

It is found that all the "lodgepole" timber in Jack Main Cañon and Matterhorn Cañon and Cathedral Pass has been killed by the bark beetle.

The timber in Tilden, Stubblefield, Kerrick, Virginia, and Cold Cañons, Tuolumne Meadows, along McGee Lake Trail, as well as the regions of Benson Lake, Tenaya Creek, and Murphy Creek, is badly infested. A ranger has been instructed by these gentlemen and will continue the work begun by them in the effort to rid the park of the pest and save the timber. The ranger reports that 1,335 trees in the general vicinity of Lake Tenaya and McGee Lake Trail have been cut down and 1,250 of them burned in the efforts to conquer the infestation. This procedure must be continued until the bugs are destroyed, lest all of the lodgepole in the whole park be destroyed, after which the other and more valuable species will be attacked.

The land owned by the Yosemite Lumber Co., about 6,000 acres along the Wawona Road, is now being cruised by a party appointed by the Secretary of Agriculture. The purpose is to ascertain the value of the timber on this land with the view to making an exchange whereby this beautiful forest may be preserved intact to the park, giving therefor an equal value elsewhere within the park and national forest where the lumber company can as cheaply log and where the results of logging will not be visible to tourists on the road.

If the exchange can be made, not only will the tourist between here and Wawona, along the Wawona Road, be edified by the beauties of the sugar pine, but there will be preserved to the park a magnificent forest along Alder Creek, where eventually another road can be easily constructed. Failure to effect the exchange will result in both areas being logged and rendering it impossible for tourists to go from here to the Mariposa Grove without passing through miles of slash and devastation. In the transfer now being projected the lumber company agrees to transfer title to the acreage. This will extinguish their title and enable the Government to apply the principles of reforestation, so that future generations will reap the benefits of present forethought.

The small areas of land in the Merced and Tuolumne Groves of Big Trees which the Government owns are surrounded by patented lands, valuable only for their timber. There is considerable acreage of patented land lying in the western part of the park and, generally speaking, between the Big Oak Flat Road at the Tamarack Creek crossing and Hetch Hetchy in the area upon which the department has authorized grazing.

It is recommended that the timber in the "grazing area" referred to and on the acreage surrounding the big-tree groves referred to, be cruised and that an effort be made to effect an exchange to the end that the timber in the vicinity of the big trees be preserved. Incidentally, the difficulties heretofore encountered through private ownership of land in the western part of the park might be satisfactorily settled without the surrender of any park lands lying east of the eastern boundaries of the private holdings in that vicinity.

It is believed that the retention of the "grazing area" in the park is a necessity for the future enjoyment of the people. A road constructed through there will rival the beauties of the Wawona Road.

Log refuge cabins should be built near Merced Lake and Lake Tenaya for the accommodation of lost or belated tourists. These are needed especially for women who often come to the park alone and wander off without adequate knowledge of the trails.

Owing to the complaints that the trails were not well marked, about 173 signs of varying length, from 2 to 34 words, were painted and erected at necessary points on the ledge trails, as far as Hetch Hetchy and the Tioga Road on the north and Merced Lake on the east. Although these signs have been placed since July 1st, they have already begun to mysteriously disappear. From this experience, it is believed that metal signs, riveted to iron posts, securely embedded in the earth and rock will be less expensive and more enduring. There are many forks and crosses on the trails in the outlying parts of the park where it will be necessary to place guide signs to direct the travel which it is confidently hoped will increase each year.

There were a total of 13,735 visitors to the park during the period September 1, 1912, to October 31, 1913.

WM. T. LITTEBRANT,
Major, First Cavalry, U. S. Army,
Acting Superintendent Yosemite National Park.

EXTRACTS FROM REPORT OF THE ACTING SUPERINTENDENT OF THE YELLOWSTONE NATIONAL PARK. (1913.)

Grand total of travel, season of 1913, 24,929.

A census of elk in and along the north line of the park was taken between April 9th and May 1st. The count showed 32,229, after having shipped 538, as noted below, making a total of 32,767, or an increase of 2,866 over the number found by the count of April, 1912.

During December, January, February and March, 538 elk were captured in the Park near the northern entrance and shipped for stocking public parks and ranges as follows: eighty to Kings County, Wash.; fifty to Yakima County, Wash.; forty to Garfield County, Wash.; fifty to Shasta County, Cal.; fifty to Pennsylvania for Clinton and Clearfield Counties; fifty to West Virginia; eighty to Arizona; twenty-five to Hot Springs, Va.; three to City Park, Aberdeen, S. Dak.; four to the City Park at Boston, Mass.; six to City Park at Spokane, Wash. One hundred were captured and shipped under direction of the Department of Agriculture, of which twenty-five went to Sundance, Wyo.; twenty-five to Estes Park, Colo.; twenty-five to Walla Walla, Wash.; and twenty-five to points in Utah. The cost of capture and loading on board the cars at Gardiner was $5 per head, which was paid by the States and parks receiving the elk. The loss in capturing and up to the time of delivery at their destination was but twenty-two animals out of 538 shipped. With plenty of grass, and the snow remaining soft so they could paw through it to get food, the elk, deer, antelope and mountain sheep wintered well and with but little loss.

Both black and grizzly bears are plentiful. Thirty-two grizzlies were noted at one time on the garbage dumps at the cañon on August 20th. During the summer it has been necessary to have five killed that had become dangerous to life and a menace to property. Attempts were made to save the robes for the National or other museums, but in only one instance was this attempt successful, owing to lack of immediate facilities for saving the skins in hot weather. The one saved was sent to the National Museum at Washington, D. C.

Bears have been captured and shipped alive for public parks as follows: October 25, 1912, a female grizzly to the Zoological Society of St. Louis, Mo.; July 31, 1913, a female grizzly with two cubs to the City Park at Atlanta, Ga.; September 14, 1913, a female grizzly to the park commissioners at Spokane, Wash.

These shipments were all made under department authority, at no expense to the Government. LLOYD M. BRETT,

Lieutenant Colonel, First Cavalry,
Acting Superintendent.

EXTRACTS FROM REPORT OF THE SUPERINTENDENT OF THE MOUNT RAINIER NATIONAL PARK. (1913.)

The number of visitors reached the total of 13,501, as compared to a total of 8,946 for the season of 1912, a gain of 52 per cent.

The number of private automobile permits issued during the season of 1913 was 1,192, as compared to 674 issued in 1912, a gain of more than 76 per cent.

As a life-saving measure, a shelter should be erected at Camp Muir, (elevation, 10,000 feet). This point is on the principal route to the summit of Mount Rainier; $1,500 will provide a suitable building. ETHAN ALLEN, *Superintendent.*

FORESTRY NOTES

Wm. E. Colby, Editor
Walter L. Huber, Assistant Editor

School of Forestry In compliance with a long-felt need, the Regents have created a Department of Forestry at the University of California at Berkeley. To head the newly established department, they have secured Walter Mulford, now Professor of Forestry in Cornell University. Professor Mulford is claimed to be one of the best informed men in the United States on the subject of forestry.

To be associated with Professor Mulford, as Assistant Professor of Forestry, the Regents have appointed Merritt B. Pratt. Professor Pratt is at present Deputy Forest Supervisor in the United States Forest Service, and has had wide and varied practical experience in the scientific and practical administration of the forests of California. —*The California Alumni Weekly.*

Summer Vacations in National Forests The number of persons who spend their summer vacations within the National Forests is growing so rapidly, says the Forest Service, that the question of providing suitable pasturage for their saddle and pack animals is becoming a problem. Campers naturally seek the spots where water is close at hand and where horse feed is abundant, in the hope that their stock will not be tempted to steal away in the night in search of more tempting pasturage. In order to provide such spots the Forest Service must set aside limited areas from which sheep and cattle are excluded.—*American Forestry.*

Du Bois' System of Fire Protection Coert du Bois, District Forester of the State of California, has worked out a wonderful system of forest fire protection in his territory. He describes one part of his organization as follows:

"On one of the heavily timbered forests in Northern California the district rangers have perfected volunteer forest fire organizations from among the residents of their districts—each volunteer company being assigned a definite area within which it is responsible. For each company there is one chief who receives forty cents an hour fighting time, one quartermaster and one packer, each paid thirty-five cents an hour, and from fifteen to thirty firemen who are paid thirty cents. Any additional men, not members of the volunteer crews, who are employed on a fire, are paid twenty-five cents an hour. At the beginning of the fire season each member receives a circular letter from the district ranger telling him the names, addresses and officers of his company and the boundary of its fire division, the number of pack horses and saddle horses available at each ranch, the duties of each member on report of a fire, the rates of pay for labor, horses and teams, the location of tool and grub caches, a brief résumé of the district fire plan and a statement of the objects of the organization and the bearing of fire protection on local interests. As the men selected are all small local ranchers and are all connected on farmer phone lines, these organizations have worked almost automatically. Although twenty or more fires have occurred in the area covered by these volunteer companies, we have never had an opportunity to see how they work in a bad fire because they have never let one get bad.

"In sparsely settled localities, highly-organized volunteer help is out of the question, of course. We are meeting such conditions with what we call the stationary patrol. During the peak of the fire season as large a number of short-term forest guards are employed as can be squeezed out of the forest allotment. These are stationed at centers of accessibility throughout the ranger district and in every case at a phone. They are given strict orders not to get out of ear-shot of the phone bell and never to leave their stations except under orders from the district ranger. Each station is fully equipped with tools and kept provisioned for two weeks ahead. The entire district is commanded by lookouts, who are in communication with the district ranger.

"A lookout locates a fire. He reports it to the district ranger, giving its size, exact whereabouts and the speed with which it is spreading. The district ranger telephones one or generally two of the nearest guards, who start immediately with two days' grub on their saddles. The ranger then organizes a crew and a commissary to follow the guards and holds them until the lookout, who is watching the progress of the fire, advises him to forward the reserves. In a remarkably large number of instances the first detachment controlled the fire. In one instance where it did not, the excellent team work on the part of lookout, ranger, guards and a hastily drafted volunteer crew put twenty-five men on a fire line far back in an inaccessible gulch six hours and a half after the first smoke raised, or at midnight. The fire was under control by daylight, and when the men had eaten breakfast they finished the last of the supplies that went out with the crew. The pack train, with a reserve of grub, sent out by the ranger immediately after the men had started, arrived before dinner."—*American Forestry.*

WORK FOR 1914 There must be better protection against forest fires, a more vigorous campaign against tree-destroying insects and disease; far-reaching educational work, including teaching school children the value of forests, and proper forest laws must be passed in several States where there is now no adequate protection.—*American Forestry Association.*

TIMBER EXCHANGES—NATIONAL PARKS

Forest Service timber lands are so intermingled with private holdings throughout a number of the Sierra forests as to make the administration of both private and National Forest land unnecessarily difficult and expensive. The Yosemite Lumber Company, of Merced Falls; the Hume-Bennett Lumber Company, of Sanger, and the Madera Sugar Pine Company, of Madera, are at present negotiating with District Forester DuBois for timber land exchanges which, if made, will result in the consolidation of the holdings of both parties and in the preservation of scenic timber areas.

The lands which the Yosemite Lumber Company propose to exchange are situated along the beautiful Wawona road which leads into the Yosemite National Park from the south. The exchange, if effected, will preserve all of the timber along this road, which would ordinarily be cut by the lumber company, making it very unsightly.

The area which the Hume-Bennett Lumber Company propose to exchange contains valuable big tree timber along the route into the Kings River Cañon, which should be preserved for the people.

The Madera Sugar Pine Company offers to exchange land in the vicinity of Signal Peak, near Wawona. This area has great scenic beauty and is now visited by a good many people in the summer season from the Wawona Hotel.

It will be necessary for Congress to pass enabling Acts before any of these exchanges can be made.

FOREST FIRE STATISTICS

Fred G. Plumber, of the Forest Service, who is gathering statistics of this year's fires, says of the work of the Forestry Service:

"The forest ranger service has reduced the loss through fire by seventy-five per cent; it has accomplished this within the past few years. The fire loss, however, is still appalling. It amounts to about 30,000,000,000 feet a year. That is an amount equal to the annual growth. That one fact is sufficient to emphasize the seriousness of the situation.

"The forest rangers are about the finest body of young men in the world. There are 3,600 of them, and each is in love with his work. He is willing to undergo any sort of hardship and take any conceivable risk to perform his duties.

"The efficiency of this department is being increased constantly, but it alone cannot solve the problem. A number of the Forest States have rendered material assistance in the enactment of stringent laws for the protection of timber and future legislation will doubtless attain the end desired.

"The worst foe we have to deal with is the forest incendiary. Most of the fire losses are due to the work of men who deliberately set fire to the timber in order to clear the land. Cattlemen have been frequently charged with the responsibility for these crimes."—*American Forestry.*

BOOK REVIEWS

Edited By Marion Randall Parsons

"The Romance of the Newfoundland Caribou"*

In these days of diminishing wild life, it is encouraging to find the study of living animals to some extent replacing the destructive zeal of the collector of specimens. However necessary the latter may be for scientific study, he deplorably helps to thin the ranks of our already scarce wild creatures. And the scarcer the creature the more his skin is coveted. That the study of living wild animals by means of photographs taken in their natural surroundings may be as absorbing a pursuit as killing them is well shown in Mr. Dugmore's stirring story of the life history of the Newfoundland caribou. Mr. Dugmore traveled into the wilderness alone and secured with his camera more trophies than the most ambitous collector could ever hope for. Literally hundreds of the noble animals are pictured in every phase of their natural daily life.

A brief sketch of the topography of Newfoundland gives an excellent idea of the physical conditions of the caribou's habitat. The caribou's year Mr. Dugmore divides into four periods, which correspond with the seasons. The summer season, beginning in June, when the caribou bring forth their young, is chosen as the starting-point. Mr. Dugmore tells how the doe dwells alone in the forests of fir and spruce at this period, "avoiding her own kind even as she avoids man. . . . During the warmer months the caribou are more or less solitary in habit, going about singly or in pairs and only rarely in small herds."

During the second period, which includes the mating season and the southerly migration, the animals reach their finest development. The horns of the stag are fully grown, the does are fat and the fawns well grown and strong. Some remarkable photographs were secured at this time, notably one of two fighting stags. The account of the long day spent in stalking a herd before this picture was secured is a well-sustained bit of narrative quite as exciting to the reader as if the stags were to be shot with bullets instead of with the camera. The southerly migration usually begins the latter part of October. Mr. Dugmore has obtained some splendid pictures of herds on the march, nearly all of them led by the more watchful does.

The third period is the time of "desolation and suffering, when Nature, in her stern way, thins out the weaklings. . . . The gates close behind the traveling herds, lakes and rivers are frozen. . . . As the winter continues the snow lies deeper, . . . making the life of the wild a hard and terrible fight, from which only the strongest and cleverest emerge. . . . The fourth period . . . is the season of hopefulness and promise. The caribou become restless, the large herds break up, and in ones and twos the does begin the long return journey to their summer homes in the north. The stags . . . follow along in small herds. . . . There is no great rush of animals, but a slow and scattered moving of the survivors of the herds which hurried southward six or seven months before."

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* *The Romance of the Newfoundland Caribou.* By A. A. Radclyffe Dugmore, F. R. G. S. J. B. Lippincott Co., London and Philadelphia, 1913. Illustrated with paintings, drawings and photographs from life by the author. 191 pages, Price, $3.75 net.

Chapters on camp outfit and methods of hunting will appeal to the sportsman, but the value of the book is the study it presents of the living animal. This has a lasting importance, and it is to be hoped that many others will follow Mr. Dugmore's example and help to preserve some record of our fast-vanishing wild life. M. R. P.

"THE CANOE AND THE SADDLE"* More than fifty years ago this story of a journey by canoe and saddle from Port Townsend on Puget Sound to The Dalles on the Columbia River appeared before the American public. Although for many years it was out of print, it has now been re-issued in attractive form by John H. Williams of Tacoma. Some new material is added in the shape of letters and journals dealing with Winthrop's trip to the Pacific Coast in the summer of 1853. The editor's scholarly annotations lend clearness and add interest for the modern reader unfamiliar with the early history of the Northwest. The numerous illustrations from photographs, the color prints, the clear type and handsome binding make a setting worthy of the book's place in American literature.

The manuscript was originally published in 1862, a year after the author's early death on a battlefield of the Civil War. It is a spirited narrative, full of youthful enthusiasm and a keen delight in the various aspects of pioneer life. While Winthrop, like his better-known contemporary, Bayard Taylor, was a traveler whose European experience gave breadth to his impressions of the primitive West, he has left us a picture rather than a study of pioneer days. His language is forceful and vivid, his scenes full of color. He did not stand aloof and comment on new conditions, as Taylor did, but plunged joyously headlong into the life as he found it. He has drawn and preserved for us a wonderful picture of the times; he has caught the very spirit of the frontier.

The beauty of the Cascade Mountains made a profound impression on Winthrop. His descriptions of their forests and meadows and of the shadowed glaciers of Mt. Rainier are very fine. His delight in the life of the trail is constantly expressed. The camp-fires, the "feasts cooked under the greenwood tree," the long nooning under the shadow of a fir in the green meadows of Naches Pass—every incident of camp and trail has for him unfailing charm. Less sympathetic is his attitude toward his Indian guides and acquaintances. He found them drunken, debased, treacherous creatures, it is true, but in his ridicule of their forlorn condition there is both unconscious cruelty and a hint of the underlying hostility between white men and red that several years later broke out into open warfare. The book is interesting alike to the mountaineer and to the lover of the early history of the Pacific Coast.

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* *The Canoe and the Saddle.* By THEODORE WINTHROP. Edited with an introduction and notes by John H. Williams. Published by John H. Williams, Tacoma, 1913. With sixteen colored plates and more than one hundred other illustrations. 332 pages. Price, $5.00 net. By express, 30 cents extra.

M. R. P.

"PICTURESQUE NEW ZEALAND"* For him who likes to travel, there cannot be a more delightful journey than the one taken in company with Mr. Paul Gooding in his book entitled "Picturesque New Zealand."

Through an interpretation of a government, we can often better understand a people. Hence at the beginning we are shown the progressiveness of the democratic government, the reformatory laws, the excellent pension system of widows and old people in this Utopia of modern governments. One learns of the climate that it closely resembles that of Italy, that it rains only in the night, that the tides are the highest and the death-rate the lowest of any country in the world.

One can guess some of the interest contained in the chapters on the flora and fauna, when I say that there are one thousand four hundred different flowering plants, of which two-thirds are not seen outside of New Zealand. In one acre of forest land there are often forty or fifty different species of trees and shrubs. And the account is as remarkable zoologically as botanically, only in a negative sense. There are but few mammalia. The birds are most weird creatures, which cannot fly. There are absolutely no snakes, and but one species of spider. Mystery surrounds all attempts to decide why there are no kangaroos and other representatives of Australasia, since fossils and shells prove that long ago the islands were very closely connected.

By far the most fascinating parts of the book are those which describe the hot rivers, springs and geysers of the North Island and the fjords, glaciers and snow-capped peaks of the South Island.

Interspersed with descriptions and adventures are everywhere myths of the early Maori civilization. From the photographs of Maori buildings and carvings, one is reminded of the Alaskan Indians and their totem poles. Among the natives, many of the primitive customs yet remain, not the least amazing of which is the *hongi* or nose salutation, by means of which two natives greet or console each other in times of joy or sadness.

L. M. R.

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* *Picturesque New Zealand.* By PAUL GOODING. Houghton, Mifflin & Co., Cambridge, 1913. 332 pages, maps and photographs by Muir and Moodie and Josiah Martin. Price, $3.50 net.

“The Carolina Mountains”[*] What a charming companion Margaret Morley must be in the wilderness! In her “Carolina Mountains,” with its lovely photographic reproductions, one feels her sympathetic love for all that is beautiful in Nature. The reader, also, is inspired with the romantic suggestion of the enchanted East, as he views the magnolia and tulip-trees in full flower in the forest and catches the magic spice of plants whose only other habitat outside of the southern mountains is in eastern Asia. We see with her the blood-red mud staining the legs of the snow-white mules, the red wasp nests and the fiery red rivers running by, laden with their sediment of red soil. We enjoy the encounters with the furred and feathered beasts. We laugh at the rage of the ruffed grouse whose anger is “one mass of irate feathers on end.”

The villages are picturesque with their gaily painted houses, of which no two are arranged at the same angle. The people are a quaint survival of that simple civilization when man was content to live on the products of his own land. Many of them have never been more than ten miles from home. They have never been in a train nor even seen an automobile. Their language is so old-fashioned that it more nearly resembles that of Chaucer than the breezy modern English, so full of foreign influence. The children always call flowers “pretties.” The fork of a river is more correctly called a “prong.” One refers to “yon-side” of the mountain. So simple and natural and hospitable are these naive, trusting people that we are almost tempted to regret the purchase of an enormous territory by one of the Vanderbilts and the establishment of model industries.

About 18,500 acres in North Carolina, in the vicinity of Mt. Mitchell (the highest mountain in the United States east of the Mississippi) have already been bought by the government as a national pleasure-ground, while further purchases are under consideration. And so future generations will continue to enjoy what is rightfully theirs in this “enchanting Holiday of Dreams.” L. M. R.

“African Camp Fires”[†] British East Africa is the scene of “African Camp Fires,” an absorbing book of hunting and camp experiences. From Mombasa, Mr. White followed the railroad northwestward to Nairobi, where he outfitted for his journeys into the wilderness. The trips were often arduous. Long treks across sandy, waterless wastes or steep hill-climbing through almost impenetrable brush were stern tests of endurance under the tropic sun. Camp life was made easy, even luxurious, however, by the small army of native guides, porters and servants which accompanied him. Lion-hunting on the Kapiti Plains forms the subject of several spirited chapters. Many strange animals were shot; the sable, the fringe-eared oryx, the lesser and greater kudu. The taking of the latter was a remarkable and noteworthy achievement. A fine photograph was obtained of a living bushbuck. Very interesting are the descriptions of the natives, their costumes, adornments, etc. Mr. White has a happy faculty of giving clear and vivid snapshots of things and people. No incident that can add a touch of color to his picture is forgotten. The book will undoubtedly be as popular as the many other widely read out-door books already to Mr. White's credit. M. R. P.

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[*] *The Carolina Mountains.* By Margaret W. Morley. Houghton, Mifflin & Co., Cambridge, 1913. 397 pages. Illustrated with photographs by the author and maps. Price, $3.50 net.

[†] *African Camp Fires.* By Stewart Edward White. Doubleday, Page & Co., New York, 1913. Illustrated from photographs. 378 pages. Price, $1.50 net.

"WINTER SPORTS IN SWITZERLAND"* During the last decade Switzerland has made the discovery that the tourist crop may be harvested twice a year. Scores of villages that formerly slept through the long winter now are awakened into activity and prosperity with the coming of the snow. New hotels are erected every year; railroads are extended, and the construction of artificial rinks for curling, ice-hockey and skating, and of courses for toboggans and bobsleighs has become a science. Mr. Benson's splendid book, "Winter Sports in Switzerland," gives a stirring picture of the present winter life, and touches but lightly on the history of its development. We hear, incidentally, however, how John Addington Symonds constructed the first rink by the energetic manipulation of a pump handle, and how only six or seven years ago the first skating rink at Villars consisted of one flooded lawn-tennis court which boasted an average patronage of three skaters. To-day the rinks at Villars cover acres of ground, where each day hundreds of skaters enjoy this fascinating sport.

It is seldom that a book which contains so much detailed information of a technical nature is written with such literary skill. Mr. Benson is not only master of an easy and brisk, yet finished style, but most successfully reflects the holiday spirit. Any one who has ever ventured upon skis will greatly enjoy the chapters on this most entrancing sport, and remember how his own skis were "lovingly entwined together" on the occasion of his first fall. The chapter on winter resorts gives many valuable hints concerning the localities whose climatic conditions render them most suitable for the different sports. Skating, curling, tobogganing and other sports are described in detail, and advice given concerning suitable clothing, boots, etc.

The make-up of the book is uncommonly attractive. The series of lake photographs showing the growth of "ice flowers" is specially worthy of praise. The photographs and color prints of the various sports inspire one with an immediate and overwhelming desire to go and do likewise. M. R. P.

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* *Winter Sports in Switzerland.* By E. F. BENSON. Dodd, Mead & Co., New York. With 12 full-page illustrations in color by C. Fleming Williams, and 47 reproductions from photographs by Mrs. Aubrey Le Blond. 197 pages. Price, $4.00 net. Postage, 25 cents extra.

"TRAVELS IN THE PYRENEES"* In an interesting volume divided into twelve books, V. C. Scott O'Connor, the author of several books on the Far East, has given impressions of that little known and little written about country of the Eastern Pyrenees, including both the Pyrenees of France and of Spain. It is refreshing to renew our historical knowledge of a country so saturated with associations of Roman history from Hannibal's time, and on through the Middle Ages. The author is a member of the French Alpine Club. A great love and admiration for Mount Canigou, the predominating peak of this region, are reflected in his book. Far from being a mountaineering book, however, it is rather a jotting down of impressions of dim old cathedrals or graceful Catalan maidens in their native dances. Two beautiful colored cuts of paintings, one of Mount Canigou, and excellent photographs on almost every page, add greatly to the interest of the book and help to give us the feeling of contrast between Spain, the easy-going and picturesque, the country of the clerical school, the bad roads and the mule, and France with its admirable system of education, its efficient postoffice, electric trains and great highways. To have such places as the Republic of Andora and Puigcerda made accessible by railroads, as the author says they soon will be, ought to bring to the Spanish new incentive and interest in life. L. F. O'C.

"CLUB ALPINO ITALIANO"† The Italian Alpine Club, organized in 1863, celebrated its fiftieth anniversary during the past year. The directorate has happily signalized the event by publishing a quarto volume of 282 pages in which the achievements of the Club during that period are portrayed with picture and pen. Being printed on heavy glazed paper, the numerous beautiful illustrations are very effective. It is interesting to meet, in the earlier chapters, fine portraits of some of the famous Italian guides, like Jean Antoine Carrel. Chapters dealing with special activities of the Club have been written by men who possess special fitness for the task. There is, for instance, a chapter on Nomenclature (Toponomastica), and Hypsometry. Another deals with the botanical and geological studies which were carried on under the auspices of the Club. One deals with "The Development of Alpinism without a Guide in Italy." It may prove suggestive to members of the Sierra Club to note how extremely varied the activities are to which the membership of this club has devoted itself. Winter sports, meteorology, museum expositions of alpine flora and fauna, the establishment of refuges and building of trails, painting and photography of alpine scenery, reforestation—all these interests have their devotees in various sections of the Italian Alpine Club. We congratulate our sister club on the fine record of its achievements.

W. F. B.

**Travels in the Pyrenees.* By V. C. SCOTT O'CONNOR. Dodd, Mead & Co., New York. With four colored plates and 158 other illustrations and a map. 348 pages. Price $3.00 net.

†*L'Opera del Club Alpino Italiano, nel primo suo cinquantennio.* Torino, 1913.

"THE INFLUENCE OF THE COLLEGE SPIRIT ON PRACTICAL PROBLEMS"* Our energetic fellow member, Ford Ashman Carpenter, has just published another little volume which is packed full of sprightly wisdom and suggestive thought. Its contents were prepared as a baccalaureate address for Whittier College, which bestowed upon him the degree of LL. D. He discusses particularly the personal qualities of reliability and efficiency which win recognition in all walks of life. The author is a keen observer and has drawn his illustrations from many fields of human thought and endeavor. The book is especially to be recommended to those who are inclined to disparage the value of a college education. It has the ring of sane enthusiasm for high ideals, and ought to do something to recruit the ranks of those who devote their lives to efficient service of the commonwealth.

W. F. B.

"MAZAMA"† The new issue of the bulletin of the Mazama Club contains many articles of interest. The 1912 and 1913 outings on Mt. Hood and Mt. Adams are chronicled by Beatrice Young. Professor W. D. Lyman writes of "Indian Myths of Mt. Adams"; the club's president, Mr. H. H. Prouty, contributes "A Climb on Mt. Robson," and Mr. John A. Lee tells of the "Mountaineer Outing in the Olympics." Other interesting papers are by Dr. J. H. Huddleson, Jr., Walter Scott McBride and Dr. C. Barck. M. R. P.

"THE MOUNTAINEER"‡ The Second Olympic Number of the *Mountaineer* is devoted mainly to this little-known range, though articles on "The Dolomites," by A. H. Albertson, and "The Ascent of Whitehorse," by S. V. Bryant, also appear. The 1913 outing is fully chronicled by Gertrude Streator. Professor E. S. Meany, the president of the Mountaineers, contributes a poem and an article on "The Olympics in History and Legend." R. L. Fromme writes of "The Olympic National Forests." Hugh Elmer Brown, J. H. Weer, Winona Bailey, M. R. Parsons, and Hazel Burroughs contribute. M. R. P.

The January, 1914, issue of *Outing* contains several very interesting articles on winter sports in America. Most significant is the story of the Outing Club of Dartmouth College. In three years it has grown from a handful of snowshoe and ski runners to a "whole college on the trail," and its "Winter Carnival" has become as settled a feature of the college activities as the "Junior Prom." "How to Snow-Shoe" is an article that should be particularly welcome to many of our Club members just at present. M. R. P.

***The Influence of the College Spirit on Practical Problems.* By FORD ASHMAN CARPENTER, LL.D. Mt. Pleasant Press, Harrisburg. 1913.

†*Mazama.* Vol. IV, No. 2, December, 1913. Published by the Mazamas, Portland, Oregon.

‡*The Mountaineer.* Second Olympic Number, Vol. VI, 1913. Published by The Mountaineers, Seattle, Washington. Price, 50 cents.

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Vol. IX No. 4

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1915

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EDWARD TAYLOR PARSONS

SIERRA CLUB BULLETIN

VOL. IX SAN FRANCISCO, JANUARY, 1915 NO. 4

EDWARD TAYLOR PARSONS

BY JOHN MUIR

Edward Taylor Parsons, mountaineer and faithful defender of national forests and parks, was born March 15, 1861, near Rochester, New York, the eldest of a family of five. His boyhood was spent on his father's farm; in his earliest years helping to look after the bees, chickens, and lambs, and at the age of fourteen ploughing, mowing and harvesting. This simple, healthful employment from daylight to dark through all sorts of weather, though rather hard and exacting in the busiest seasons, was not, however, without a few fine compensating holidays spent in fishing and rowing on Black Creek, nutting in the glorious Indian Summer, and in winter skating and sleighing with merry companions, thus forming a bright background for the great club camp-fires in the mountain and forest wildernesses of the west side of the continent that he was soon to know and love so well.

His parents were poor and the farm was poor, and of course he had to work hard. He was fond of reading, but both time and books were scarce and the wide world of libraries opened later to him than to most boys. Excepting what he learned at a little district school during a few odd months in winter, he had no instruction until at the age of eighteen years he entered the Rochester Academy, going home to help in the farm work during the summer vacations. Three years later he entered Rochester University and worked his way through four lean and hungry years with money earned in harvesting, reporting on an evening newspaper, copying in a lawyer's office, and was graduated with the class of 1886.

Continuing his studies, he was called back to Rochester University two years later to receive the degree of master of arts. He intended to study law, but family circumstances called for immediate financial assistance, and a few months after graduation he gained a place in a business house which he held with increasing usefulness and honor until his last illness.

With Chicago as his headquarters, he now began to make long business journeys into the western country, through Dakota, Utah, Arizona, New Mexico, California, Hawaii, Washington and Oregon, spending the summer vacations in mountaineering.

He first became interested in mountaineering clubs in Oregon, where, in 1896, he joined the Mazama Club of Portland in one of their early outings to Crater Lake and Mt. Pitt. Thenceforward every summer vacation, when he was free from business cares, he spent on the outings of mountaineering clubs. With the Mazamas in 1897 he climbed Mt. Rainier; in 1899 visited the Lake Chelan region, and with a small private party of Mazamas made his first ascent of Mt. Shasta, and in 1900 was a member of their outing to Mt. Jefferson. Later, with the Sierra Club, he climbed Mt. Hood, and made second ascents of both Rainier and Shasta. With the Sierra Club, too, he climbed Mts. Dana, Lyell, Ritter, Brewer, Williamson, Whitney, and many others, besides three times making the difficult descent of Tuolumne Cañon. On his last outing, in 1913, he climbed Mts. Seattle and Olympus with the Mountaineer Club of Washington.

During a visit to Yosemite Valley in May, 1900, he first heard of the Sierra Club, and on his return to San Francisco he was elected a member. The directors of the club were at this time trying to plan regular annual outings against considerable opposition. The practical knowledge which Mr. Parsons had gained on the Mazama outings opened a clear way through all opposition, and from that year the club has held successful summer outings with ever-increasing numbers and influence.

Mr. Parsons' active interest in the work of the club began from his earliest connection with it. For thirteen years he was a member of the outing committee, for nine years a director, recently chairman of the Le Conte Memorial Lodge Committee, and long an untiring worker on the club Bulletin.

In the work of other mountaineering clubs he also took an active interest; was a charter member of the Mountaineers' Club, organized in 1907, and only a few months before his death was elected Western vice-president of the American Alpine Club of Philadelphia.

In 1907 he married Marion Randall, as able and enthusiastic a mountaineer as himself, whom he first met on the Sierra Club Outing of 1903, and three years later, in 1910, established his first home high up on the Berkeley hills overlooking the Golden Gate, some thirty-one eventful years after he left the home farm.

Like most mountaineers, Mr. Parsons was fond of wild scenery. He carried a heavy camera on all his trips, however difficult, up to the tops of the highest mountains and down the roughest cañons, making numberless photographs, many of which, reproduced in various publications, have done good service in the promotion of mountaineering and particularly in the cause of the preservation of our national forests and parks.

On first acquaintance he seemed at times to be rather dictatorial in carrying out the rules and regulations of the outing committees of which he was a member; but these impressions quickly vanished when one saw him patiently at work in camp or on the trail, stretching and cobbling shoes, reinforcing thin soles, sharing his blanket with some unfortunate whose dunnage bag had gone astray.

In helpful work he was never sparing of time or strength, spending almost every spare moment of his last years in whole-souled self-sacrificing devotion to the best interests of the club in every way. For his unflagging devotion to the lost cause of Hetch Hetchy he paid a heavy price in strength and health as well as in time and money. After a very short illness he passed away on May 22, 1914. He will be sadly missed and his memory will long be cherished by all the mountaineers of the West as one of the most faithful of the faithful.

EDWARD TAYLOR PARSONS: AN APPRECIATION

By William E. Colby

I first met Edward Taylor Parsons in the fall of 1900. Learning that I was Secretary of the Sierra Club, he called at my office in San Francisco with a letter from the Mazama Club, stating that he was interested in mountaineering, and since he expected to spend considerable time in California he wished to join the Sierra Club. From that day an unusually close and intimate friendship sprang up between us.

Inspired by what the Mazamas had accomplished, I had already proposed to the Board of Directors the plan of conducting annual outings under the auspices of the Sierra Club and in conjunction with the Club work. This proposal had been reluctantly indorsed by the Board, as some of the Directors had doubts as to the success of the plan, and authority to conduct the initial outing in the summer of 1901 had been granted. There was considerable inertia to overcome and innumerable problems to be solved in this venture. Mr. Parsons arrived on the scene at the critical time. The frontispiece pictures him at this period, in the prime of his life, possessed of tireless energy and enthusiasm. His experience gained on the Mazama trips proved invaluable and I had him added to the Outing Committee as my chief assistant.

It is impossible to describe adequately the debt the Club owes to Mr. Parsons, or for that matter which I owe him personally, for his aid and wise counsel during these early outings when we were breaking ground and overcoming the multitude of difficulties that were encountered. He was ever ready to accept responsibility and proved especially helpful in the organization and leadership of side trips and mountain climbs. He was alert to guard against possibility of accident, and while some felt that his caution in this respect was excessive, doubtless there are many who joined in these expeditions who have him to thank for avoidance of accident which his extreme care and foresight averted.

The Sierra Club meant more to Mr. Parsons than it can possibly mean to all but a very few. It filled a distinct place in his life and became a vital part of his existence. This was due to his inherited character and clean, strong personality. His years of continuous travel all over the United States in the interest of the company he so efficiently represented had not the slightest effect as it does with many, of breaking down and lowering the high mental and moral standards he had acquired in his youth and during his university career. The better things in life continued to interest him with undiminished force. His taste for the best literature was an ever-present source of enjoyment, and because of his fondness for "God's out-of-doors," he joined in the early Mazama expeditions, heart and soul. The ideals of the Sierra Club, the inspiration of its leaders, John Muir, Joseph Le Conte, and others, as well as the delightful summer outings in the hospitable Sierra, made the strongest kind of appeal to him and satisfied the higher longings of his nature. It was on these outings that he met the girl he chose for his wife, and her interest in all these same ideals and their similar literary tastes made their married life one of enviable harmony.

His devotion to the Club was most strongly evidenced by his untiring labor in connection with the Sierra Club publications. No amount of time-consuming drudgery such as the revision of copy, proof-reading, or supervision of mechanical details of the printing, caused him to shirk a task whose only compensation was the personal satisfaction of having done a good work faithfully and well, and which, because of its nature, was fully appreciated by only the very few who labored with him. Seldom is a Club so fortunate as to have a man of such splendid character and intellectual attainments so thoroughly devoted to its welfare, and who gave so freely and generously of his time to promote its cause. The Sierra Club and all his friends have suffered a loss that cannot be measured.

As a tribute to his devotion to the Club his friends have started a subscription known as the "Parsons Memorial Fund," and the response has been so generous that nearly a thousand dollars has already been subscribed. This fund will be used for the erection of an appropriate memorial. It has been decided that this shall be a building or lodge of stone and as large as the fund will justify, to be erected on the Soda Springs property in the Tuolumne Meadows, which is now controlled by the Club. This will be a single room containing a large fireplace and will serve as a permanent Club headquarters and meeting place in that region. In this manner will Mr. Parson's usefulness and devotion to the Club be suitably perpetuated.

It will interest Club members to learn that his wife, Marion Randall Parsons, has been elected a Director of the Club by the remaining members of the Board. Her devotion to the interests of the Club has been such that it seems particularly appropriate that she should have been selected to aid in carrying forward the work which meant so much to Mr. Parsons.

In Memoriam Resolutions Adopted by the Directors

Whereas, the Sierra Club and the Board of Directors have sustained an irreparable loss in the untimely death of Director Edward Taylor Parsons; be it resolved,

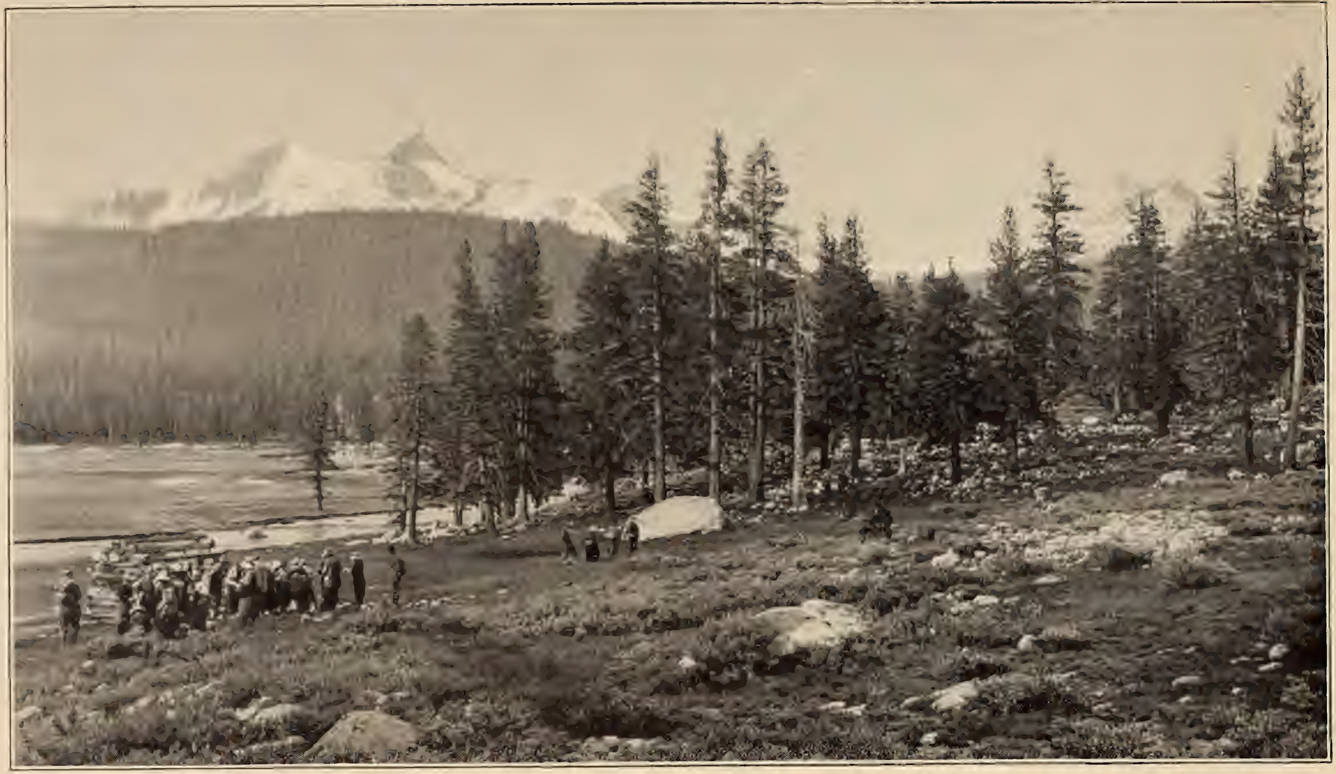
I. That we record our deep sense of personal loss over the departure of one who rarely ever was absent from the deliberations of this body, and whose place has now been made vacant by an inscrutable Providence;

II. That we bear in grateful remembrance his nobility of character, the sanity and wisdom of his counsel, his unfailing devotion to the interests of the Club, his cheerful response to every special emergency, as well as his steadfast and brotherly friendship;

III. That we recognize particularly the deep interest and devotion which he brought to the task of preserving the Hetch-Hetchy Valley from the hands of the spoiler, a task which made heavy drafts upon his strength and vitality;

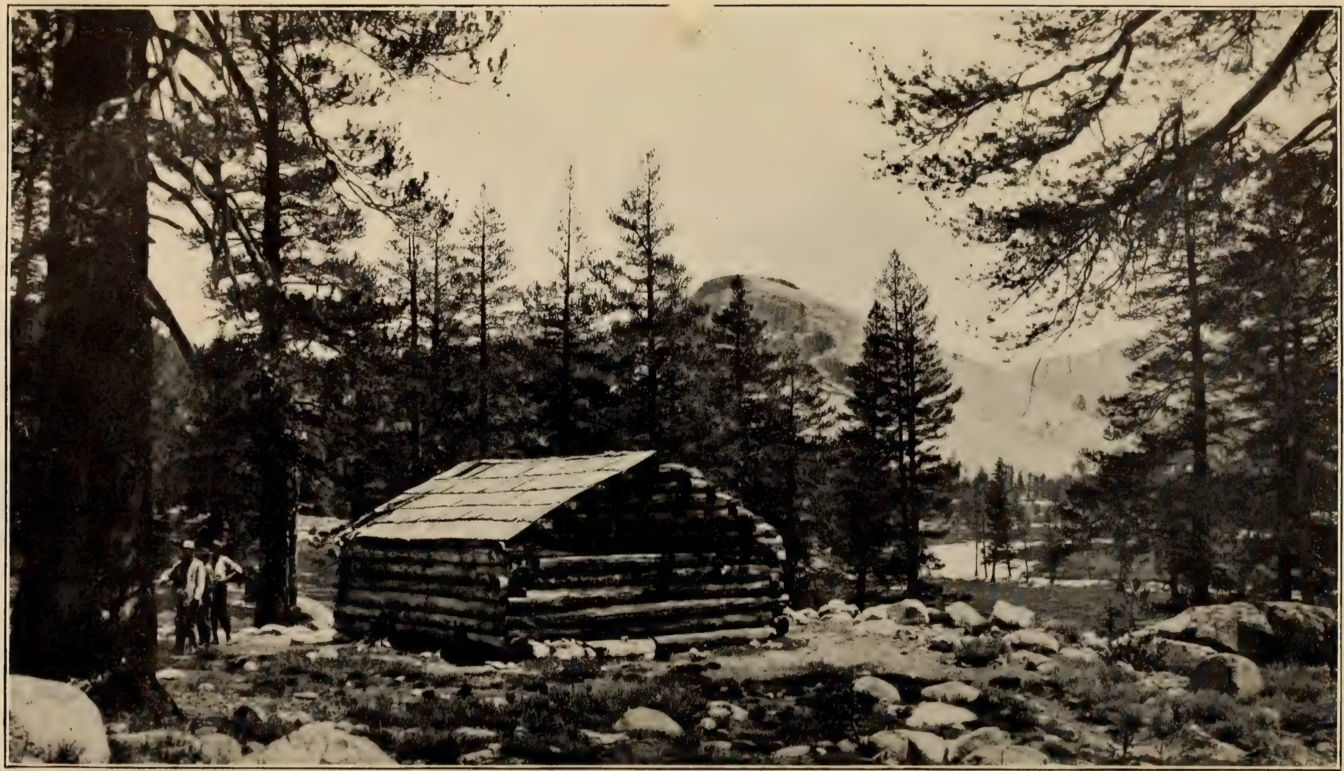
IV. That we herewith express our sense of the great and lasting value of his years of service on the Directorate of the Sierra Club, and in the personnel of its important committees;

V. That these resolutions be spread upon the minutes of the Directors' meetings, be published in the Sierra Club Bulletin, and a copy be forwarded to his widow.



TUOLUMNE SODA SPRINGS PROPERTY, SITE OF THE PROPOSED PARSONS MEMORIAL LODGE AND SIERRA CLUB CAMP FOR 1915

Photo by W. L. Huber



CABIN ON SODA SPRINGS PROPERTY

Photo by Marion Randall Parsons

STUDIES IN THE SIERRA*

I. Mountain Sculpture

By John Muir

In the beginning of the long glacial winter, the lofty Sierra seems to have consisted of one vast undulated wave, in which a thousand separate mountains, with their domes and spires, their innumerable cañons and lake basins, lay concealed. In the development of these, the Master Builder chose for a tool, not the earthquake nor lightning to rend and split asunder, not the stormy torrent nor eroding rain, but the tender snow-flowers, noiselessly falling through unnumbered seasons, the offspring of the sun and sea. If we should attempt to restore the range to its pre-glacial unsculptured condition, its network of profound cañons would have to be filled up, together with all its lake and meadow basins; and every rock and peak, however lofty, would have to be buried again beneath the fragments which the glaciers have broken off and carried away. Careful study of the phenomena presented warrants the belief that the unglaciated condition of the range was comparatively simple; yet the double summits about the head of Kern River and Lake Tahoe, and the outlying spurs of Hoffmann and Merced, would appear to indicate the primary existence of considerable depressions and elevations. Even these great features, however, may be otherwise accounted for.

All classes of glacial phenomena are displayed in the Sierra on the grandest scale, furnishing unmistakable proof of the universality of the ice-sheet beneath whose heavy folds all her sublime landscapes were molded. Her ice-winter is now nearly ended, and her flanks are clothed with warm forests; but in high latitudes, north and south, and in many lofty mountains, it still prevails with variable severity. Greenland and the lands near the south pole are undergoing glaciation of the most comprehensive kind, and present noble illustrations of the physical and climatic conditions under which the Sierra lay when all the sublime pages of her history were sealed up. The lofty Himalaya, the Alps, and the mountains of Norway are more open, their glacial covering having separated into distinct glaciers that flow down their valleys like rivers, illustrating a similar glacial condition in the Sierra, when all her valleys and cañons formed channels for separate ice-rivers. These have but recently vanished, and when we trace their retiring footsteps back to their fountains among the high summits, we discover small residual glaciers in considerable numbers, lingering beneath cool shadows, silently completing the sculpture of the summit peaks.

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* Reprinted from the *Overland Monthly* of May, 1874. This is the first of a series of studies published by Mr. Muir more than forty years ago. It is a fine example of the geological pioneer work done by John Muir in the Sierra Nevada.—*Editor.*

The transition from one to the other of these different glacial conditions was gradual and shadow-like. When the great cycle of icy years was nearly accomplished, the glacial mantle began to shrink along the bottom; domes and crests rose like islets above its white surface, long dividing ridges began to appear, and distinct glacier rivers flowed between. These gradually became feeble and torpid. Frost-enduring carices and hardy pines pushed upward along every moraine and sun-warmed slope, closing steadily upon the retreating glaciers, which, like shreds of summer clouds, at length disappeared from the young and sunny landscapes.

We can easily understand that an ice-sheet hundreds or thousands of feet in thickness, slipping heavily down the flanks of a mountain chain, will wear its surface unequally, according to the varying hardness and compactness of its rocks; but these are not the only elements productive of inequalities. Glaciers do not only *wear* and grind rocks by slipping over them, as a tool wears the stone upon which it is whetted; they also *crush* and *break*, carrying away vast quantities of rock, not only in the form of mud and sand, but of splinters and blocks, from a few inches to forty or fifty feet in diameter.

The whole mass of the Sierra, as far as our observation has reached, is built up of brick-like blocks, whose forms and dimensions are determined chiefly by the degree of development of elected *planes of cleavage,* which individualize them, and make them separable from one another while yet forming undisturbed parts of the mountain. The force which binds these blocks together is not everywhere equal; therefore, when they are subjected to the strain of glaciers, they are torn apart in an irregular and indeterminate manner, giving rise to endless variety of rock forms.

The granite in some portions of the range is crumbling like meal by the decomposition of its feldspar throughout the mass, but the greater portion has suffered scarcely any disintegration since the close of the glacial period. These harder areas display three series of cleavage or separating planes, two nearly vertical, the other horizontal, which, when fully developed, divide the rock into nearly regular parallelopipeds. The effects of this separable structure upon the glacial erodibility of rocks will be at once appreciated. In order that we may know how mountain chains are taken apart, it is important that we first learn how they are put together; and now that we have ascertained the fact that the Sierra, instead of being a huge wrinkle of the earth's crust without any determinate structure, is built up of regularly formed stones like a work of art, we have made a great advance in our mountain studies; we may now understand the Scripture: "He hath *builded* the mountains," as not merely a figurative but a literal expression.

In order that we may obtain some adequate estimate of the geological value of this cleavage factor in the production of cañons, rock forms, and separate mountains, with their varied sculpture, we must endeavor to find out its range, variations, and what forces are favorable to its development; what are the effects of its suppression in one place, and development in another; what are the effects of the unequal development of the several series. In the prosecution of these inquiries, we soon discover that the middle region of the west flank is most favorable for our purposes, because the lower is covered to a great extent with soil, and the upper, consisting of sharp peaks, is so shattered, or rather has *all* the various planes so fully developed, we are unable to study them in their simple, uncombined conditions. But the middle region, while it has all its cleavage phenomena on the largest scale both of magnitude and specialization, is also simple and less obscured by forests and surface weathering, and affords the deepest, as well as widest naked sections, the former in Yosemitic cañons, the latter in flat basins like those of Yosemite Creek, Lake Tenaya, and upper Tuolumne Valley, wherein broad areas of glacier-polished granite are spread out, as clean and unblurred as new maps.

I should have stated that the three series of cutting planes mentioned above are not the only ones existing in these rocks, but we will consider them first, because they are most marked in their modes of development, and have come most prominently into play in the formation of those unrivaled cañons and rocks which have made the Sierra famous. In studying their direction and range, we find that they extend along the west flank from latitude 36° to 40° at least, and from the summit to the soil-covered foot-hills, and in all probability further observation would show that *they are co-extensive with the length and breadth of the chain.* We measured the direction of the strike of hundreds, belonging to the two vertical series, many of which run unbrokenly for miles in a tolerably uniform course, the better developed ones nearly at right angles to the axis of the range, the other parallel with it. Cañon sections show that they cleave the granite nearly vertically to a depth of 5,000 feet without betraying any tendency to give out. The horizontal series appear also to be universal. In some places these divisional planes are extended within a few inches of each other, while in others only one conspicuous seam is visible in a breadth of bare rock half a mile in extent. Again, many large domes occur that ex-

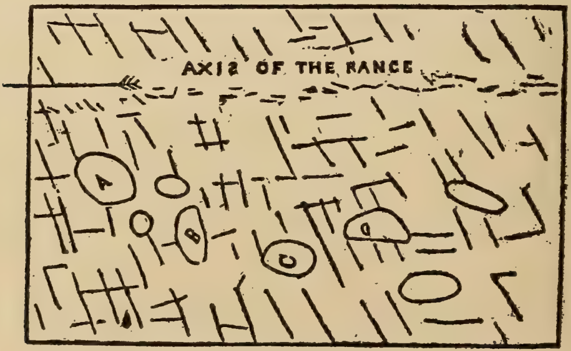


FIG. 1.

hibit none of these planes, and appear to be as entirely homogeneous in structure as leaden balls. Thus, let Fig. 1 represent a horizontal section of the range; A, B, C, D, cones and conoides where none of the cleavage planes appear. The question here arises, are these domed portions cleavageless, or do they possess the same cleavage as the surrounding rock, in an undeveloped or latent condition? Careful observation proves the latter proposition to be the true one, for on the warm and moist surfaces of some of the older domes we detect the appearance of incipient planes running parallel with the others, and in general wherever any rock apparently homogeneous in structure is acted upon by the spray of a water-fall, its cleavage planes will appear. We may conclude, therefore, that however numerous the areas may be which seem solid and equal in structure, they are still traversed in definite directions by invisible cutting planes, which render them separable when the conditions required for their development have been supplied.

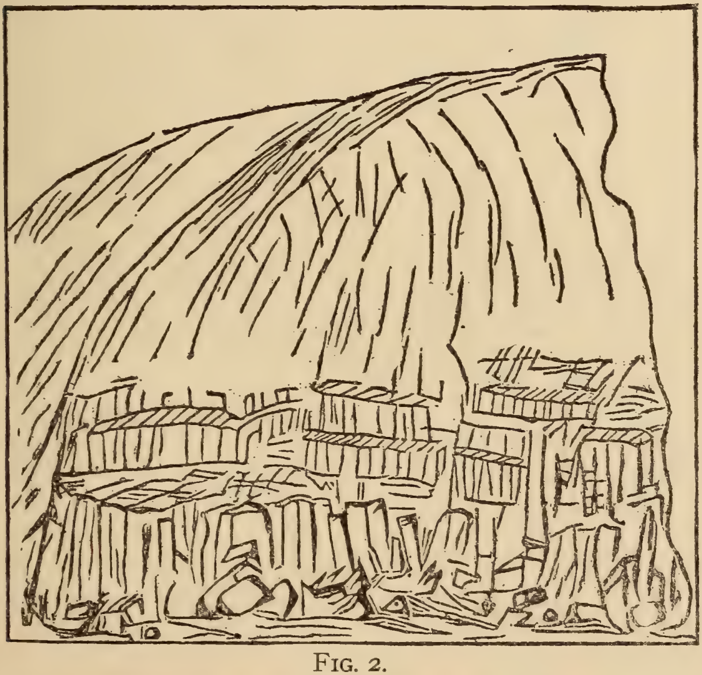


FIG. 2.

Fig. 2 represents the side of a dome at the head of Yosemite Fall, with parallelopipedal blocks developed along its base.

The development of the brick structure is probably due to spray blown back from the brow of the fall in storms. It is to the development of these brick-making planes by long-continued atmospheric action, that the picturesque ruins so frequently met with on lofty summits are due. Where only one of the cutting vertical series has been developed in a granitic region otherwise strong in its physical structure, and a sufficient amount of glacial force exerted in a favorable direction has been concentrated upon it, its rocks have been broken up in flakes and slabs, and those majestic mural precipices produced which constitute so sublime a part of the Yosemitic scenery of the Sierra. Fig. 3 represents a granite tower on the crest of Mount Hoffmann, composed of jointed blocks.

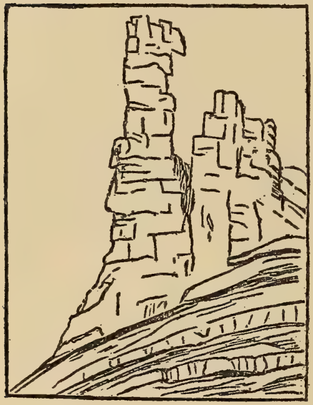


FIG. 3.

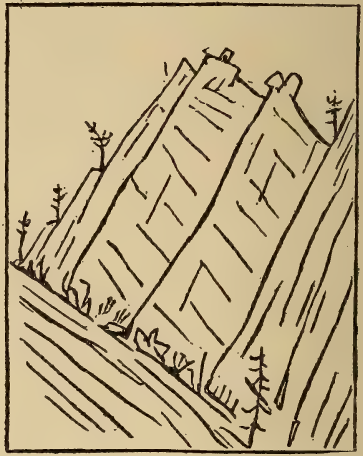


FIG. 4.

Another series of cutting planes which pass diagonally through those we have been considering, give rise to pyramidal and roof-shaped forms. This diagonal cleavage is found in its fullest development in the metamorphic slate of the summit, producing the sharp-pointed peaks for which the summit region is noted. To it is also due the huge gables which are found in Yosemite and Tuolumne cañons, such as the Three Brothers, and the pointed rock adjoining the Royal Arches. Fig. 4 represents the highest of the Three Brothers, Yosemite Valley.

illustrating *diagonal cleavage in granite;* and Fig. 5 is a gable on the south wall of the big Tuolumne Cañon. It will be at once perceived that the forms contained in Fig. 6 (a rock situated near the small side-cañon which separates El Capitan and the Three Brothers, in Yosemite Valley), have resulted from the partial development of both diagonal and rectangular cleavage joints. At *a, b, c, d,* incipient diagonal planes are beginning to appear on the otherwise solid front. Some of the planes which have separated the two summit blocks, *e* and *f,* may be seen at *g*.

The greatest check to the free play and controlling power of these divisional planes is the occurrence, in immense numbers and size, of domes, cones, and round wave-ridges, together with an innumerable brood of modified forms and combinations. The curved cleavage which measures and determines these

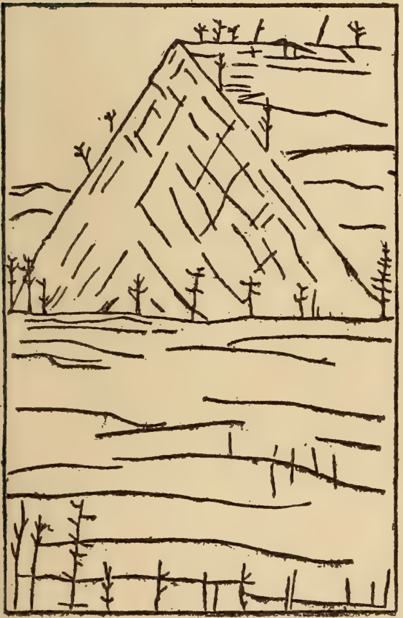


Fig. 5.

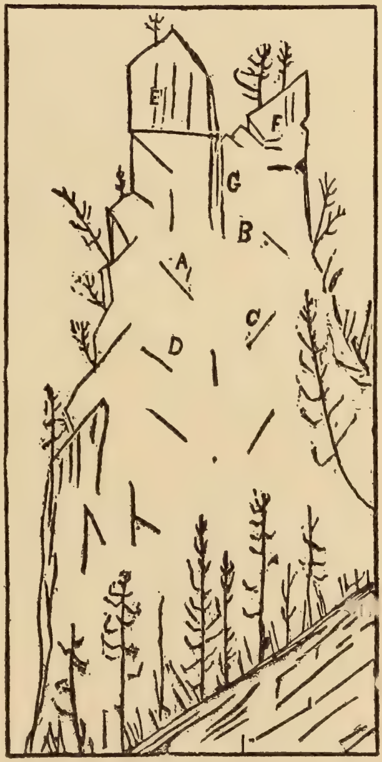


Fig. 6.

rounded forms, may be designated *the dome cleavage,* inasmuch as the dome is apparently the most perfect typical form of the group.

Domes of close-grained silicious granite are admirably calculated to withstand the action of atmospheric and mechanical forces. No other rock form can compare with it in strength; no other offered so unflinching a resistance to the tremendous pressure of the glaciers. A dam of noble domes extends across the head of Yosemite Valley, from Mount Starr King to North Dome, which was effectually broken through by the combined force of the Hoffmann and Tenaya glaciers; but the great south Lyell glacier, which entered the valley between Starr King and Half Dome, was unable to force the mighty barrier, and the approach of the long summer which terminated the glacial epoch, found it still mazing and swedging compliantly among the strong unflinching bosses, just as the winds are compelled to do at the present time.

The Starr King group of domes (Fig. 7) is perhaps the most interesting of the Merced basin. The beautiful conoid, Starr King, the loftiest and most perfect of the group, was one of the first to emerge from the glacial sea, and ere its new-born brightness was marred by storms, dispersed light like a crystal island over the snowy expanse in which it stood alone. The moraine at the base is planted with a very equal growth of manzanita.

There appear to be be no positive limits to the extent of dome structure in the granites of the Sierra, when considered in all its numerous modifications. Rudimentary domes exist everywhere, waiting their development, to as great a depth as observation can reach. The western flank was formerly covered with slates, which have evidently been carried off by glacial denudation from the middle and upper regions; small patches existing on the summits and spurs of the Hoffmann and Merced mountains are all that are now left. When a depth of two or three thousand feet below the bottom of the slates is reached, the dome structure prevails almost to the exclusion of others. As we proceed southward or northward along the chain from the region adjacent to Yosemite Valley, dome forms gradually become less perfect. Wherever a broad sheet of glacier ice has

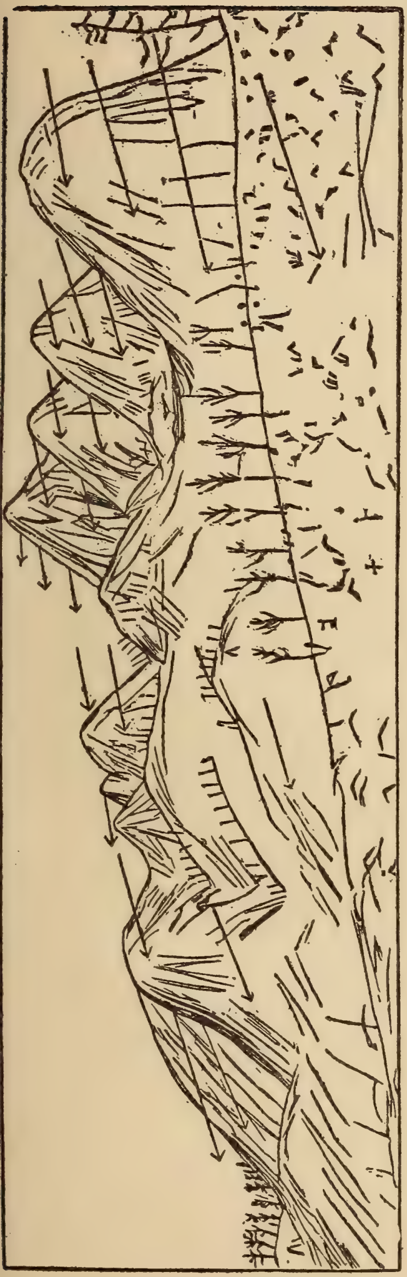


Fig. 7.

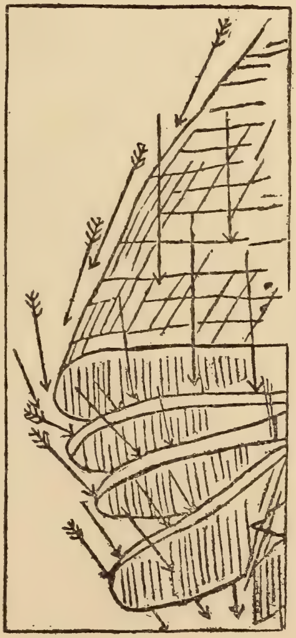


Fig. 8.

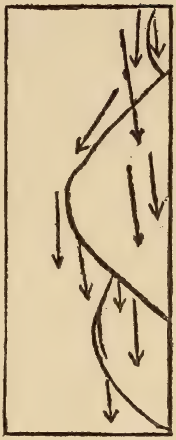


Fig. 9.

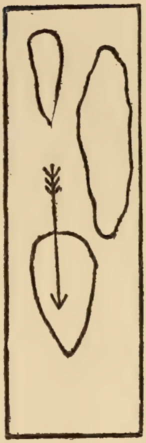


Fig. 10.

flowed over a region of domes, the superior strength of their concentric structure has prevented them from being so extensively denuded as the weaker forms in which they lie imbedded; but after thus obtaining a considerable elevation above the general level, unless their cleavage planes were wholly latent they were liable to give way on the lower side, producing forms like Fig. 8, in every stage of destruction. In the case of rocks wherein no cleavages of any kind were developed, forms have resulted which express the greatest strength considered with reference to the weight and direction of the glacier that overflowed them. Their most common form is given in Fig. 9. Some of their cross-sections are approximately given in Fig. 10. But few examples are to be found where cleavage and irregularity of hardness do not come in to complicate the problem, in the production of that variety of which nature is so fond.

We have already seen that domes offer no absolute barrier to the passage of vertical and horizontal cleavage planes; but it is also true that domes cut one another. Fig. 11 is a section obtained near the head of a remarkably deep and crooked gorge in the Tenaya Cañon, four miles above Mirror Lake. The broken edges of the concentric layers of a dome, marked thus ″, present themselves on the overleaning wall of the gorge, and upon the buried dome whose section thus appears another dome is resting, furnishing conclusive evidence

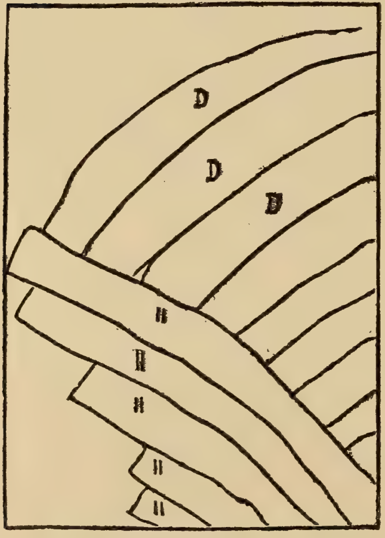


Fig. 11.

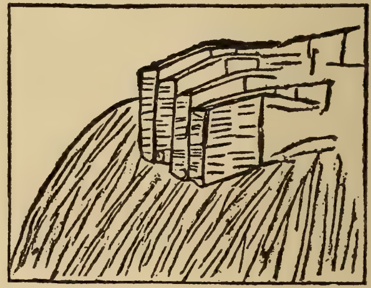


Fig. 12.

that a series of concentric shells which form a dome may be cut by another series of the same kind, giving rise to domes *within* domes and domes *upon* domes.

Fig. 12 represents bricks, thirty or forty feet in height, placed directly upon a smooth, well-curved dome, which dome, in turn, is borne upon or rather stands out from a yet larger dome-curved surface forming a portion of the east side of El Capitan rock, near the top.

The Tuolumne middle region presents a sublime assemblage of glacier-born rocks, of which a general view may be obtained from the summit of Mount Hoffmann. These were overswept by the wide outlets of the great Tuolumne *mer de glace*. The Tuolumne Cañon outlet flowed across the edges of the best developed or north 35° east vertical cleavage planes, which gave rise to an extraordinary number of rocks, like Fig. 8, with their split and fractured faces invariably turned down stream, and round abraded sides up against the ice-current.

This glaciated landscape is unrivaled in general effect, combining as it does so many elements of sublimity. The summit mountains, majestic monuments of glacial force, rise grandly along the azure sky. The brown Tuolumne meadow, level as a floor, is spread in front, and on either side a broad swath of sombre pines, interrupted with many small meadow openings, around the edges of which the forest presses in smooth close lines. On the level bottom of the *mer de glace,* mountains once stood, which have been broken and swept away during the ice-winter like loose stones from a pavement. Where the deep glacial flood began to break down into the region of domes, a vast number of rock forms are seen on which their glacial history is written in lines of noble simplicity.

No attribute of this glacial landscape is more remarkable than the map-like distinctness of its varied features. The directions and magnitudes of the main ice-currents, with their numerous subordinate streams, together with the history of their fluctuations and final death, are eloquently expressed in the specific rocks, hills, meadows, and valleys over which they flowed. No commercial highway of the sea, edged with buoys and lamps, or of the land, with fences and guide-boards, is so unmistakably marked as these long-abandoned highways of the dead glaciers.

If, from some outlook still more comprehensive, the attentive observer contemplates the wide flank of the Sierra, furrowed with cañons, dimpled with lake basins, and waved with ridges and domes, he will quickly perceive that its present architectural surface is not the one upon which the first snows of the glacial winter fell, because, with the simple exceptions of the jagged summit-peaks from whose *névé* fountains the glaciers descended, there exists over all the broad flank of the range *not one weak rock form.* All that remain to roughen and undulate the surface are strong domes, or ridge-waves, or crests, with pavement-like levels or solid-walled cañons between. All the rest have been broken up and swept away by the glaciers. Some apparent exceptions to this general truth will present themselves, but these will gradually disappear in the light of patient investigation. The observer will learn that near the summit ice-fountains there are absolutely no exceptions, even in appearance, and that it is only when he follows down in the paths of the glaciers, and thus comes among rocks which were longer left bare by them in their gradual recession, that he begins to find instances of rocks at once weak in structure and strong in form.

The regular transition from strong to weak rocks will indicate that the greater weakness of those farther removed from the summits, is due to some force or forces which acted upon them subsequently to the time they were sustaining the wear and tear of the glaciers. The causes of this after-weakness are various. First we may note the most apparent—the slow decomposition of the mass of the rock by the atmosphere, under favorable conditions of heat and moisture. Some varieties of granite crumbled rapidly by the decomposition of their feldspar throughout the mass. Rocks traversed by feldspathic veins, that are otherwise strong, fall apart on the decomposition of the veins, into a heap of loose blocks. Frost also, combined with moisture, produces a wasted, shattered appearance. But by far the most general and influential cause of the feeble condition of old rocks, which formerly withstood the terrible ordeal of glacial action, is the subsequent development of one or several of their cleavage planes. For example, here is (Fig. 13) a

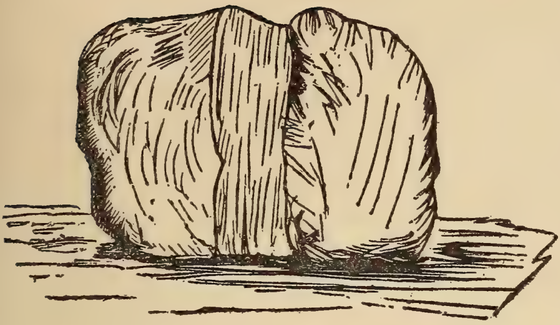


FIG. 13.

boulder of hard metamorphic slate, which, after withstanding many a crush and blow in its winter history, until its angles were worn and battered, at length, on the recession of the glacier to which it belonged, came to rest on a smooth hard pavement, so level that it could not have rolled or fallen to its present position. Yet it is now split in two, having fallen apart by its own weight, on the ripening of one of its cleavage planes, just as the valves of seeds ripen, open, and fall.

Fig. 14 is a profile view of a rock 200 yards from the head of the Yosemite Fall, which is now weak and ready to fall apart by the development of the vertical north 35° east cleavage planes, the edges of which are seen in front; yet it is certain that this rock was once subjected to the strain of the oversweeping Yosemite basin glacier, when on its way to join the main trunk Yosemite glacier in the valley.

Fig. 15 is a ruinous dome-top on the divide between Yosemite Creek basin and cascade. The beginner in such studies would not perceive that it had been overswept; yet hard portions near the base show clear evidence of glacial action, and, though ruinous and crumbling, it will at once appear to the educated eye that its longer diameter is exactly in the direction of the oversweeping ice-current, as indicated in the figure by the arrows. Rock masses, hundreds or even thousands of feet in height, abound in the channels of the ancient glaciers, which illustrate this argument by presenting examples in every stage of decay, the most decayed always occurring just where they have been longest exposed to disintegrating and general weathering agents. The record of ice phenomena, as sculptured, scratched, and worn upon the mountain surfaces, is like any other writing, faint and blurred according to the length of time and hard usage to which it has been exposed. It is plain, therefore, that the present sculptured condition of the Sierra

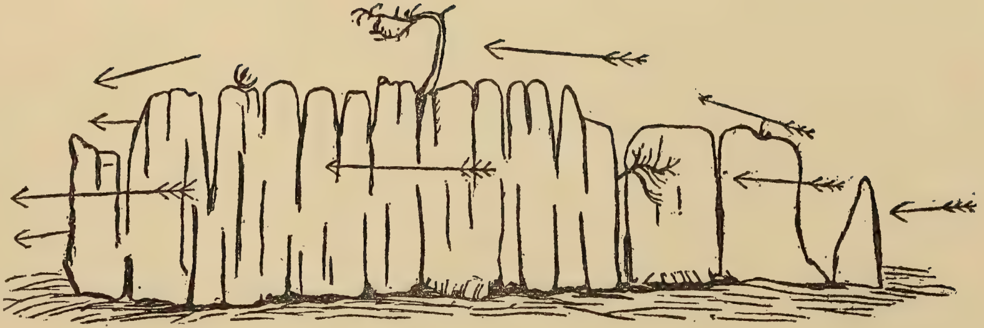


Fig. 14.

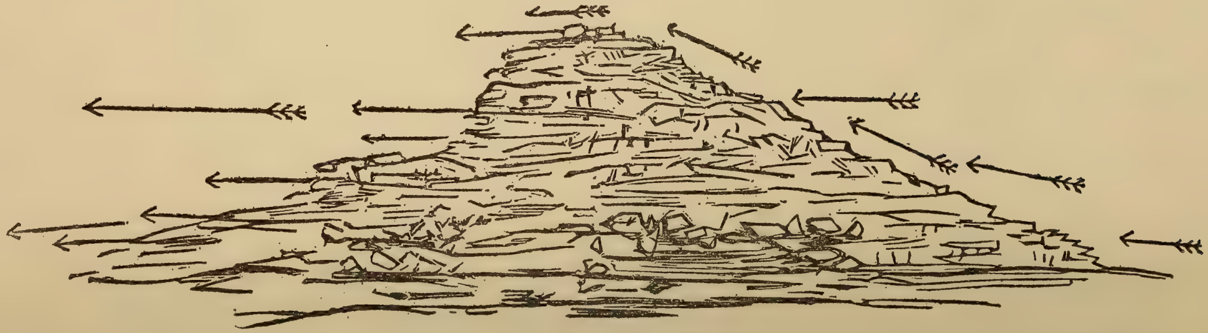


Fig. 15.

is due to the action of ice and the variously developed cleavage planes and concentric seams which its rocks contain. The architect may build his structures out of any kind of stone, without their forms betraying the physical characters of the stone employed; but in Sierra architecture, *the style always proclaims the nature of the rock.*

In walking the sublime cañon streets of the Sierra, when we see an arch spanning the pine groves, we know that there is the section of a glacier-broken dome; where a gable presents itself, we recognize the split end of a ridge, with diagonal cleavage planes developed atop, and these again cut by a vertical plane in front. Does a sheer precipice spring from the level turf thousands of feet into the sky, there we know the rock is very hard, and has but one of its vertical cutting planes developed. If domes and cones appear, there we know the concentric structure predominates. No matter how abundant the glacial force, *a vertical precipice can not be produced unless its cleavage be vertical,* nor a dome without dome structure in the rock acted upon. Therefore, when we say that the glacial ice-sheet and separate glaciers *molded* the mountains, we must remember that their molding power upon *hard granite possessing a strong physical structure* is comparatively slight. In such hard, strongly built granite regions, *glaciers do not so much mold and shape,* as *disinter forms already conceived and ripe.* The harder the rock, and the better its specialized cleavage planes are developed, the greater will be the degree of controlling power possessed by it over its own forms, as compared with that of the disinterring glacier; and the softer the rock and more generally developed its cleavage planes, the less able will it be to resist ice action and maintain its own forms. In general, the *grain of a rock determines its surface forms;* yet it would matter but little what the grain might be—straight, curved, or knotty—if the excavating and sculpturing tool were sharp, because in that case it would cut without reference to the grain. Every carpenter knows that only a dull tool will follow the grain of wood. Such a tool is the glacier, gliding with tremendous pressure past splitting precipices and smooth swelling domes, flexible as the wind, yet hard-tempered as steel. Mighty as its effects appear to us, it has only developed the predestined forms of mountain beauty which were ready and waiting to receive the baptism of light.

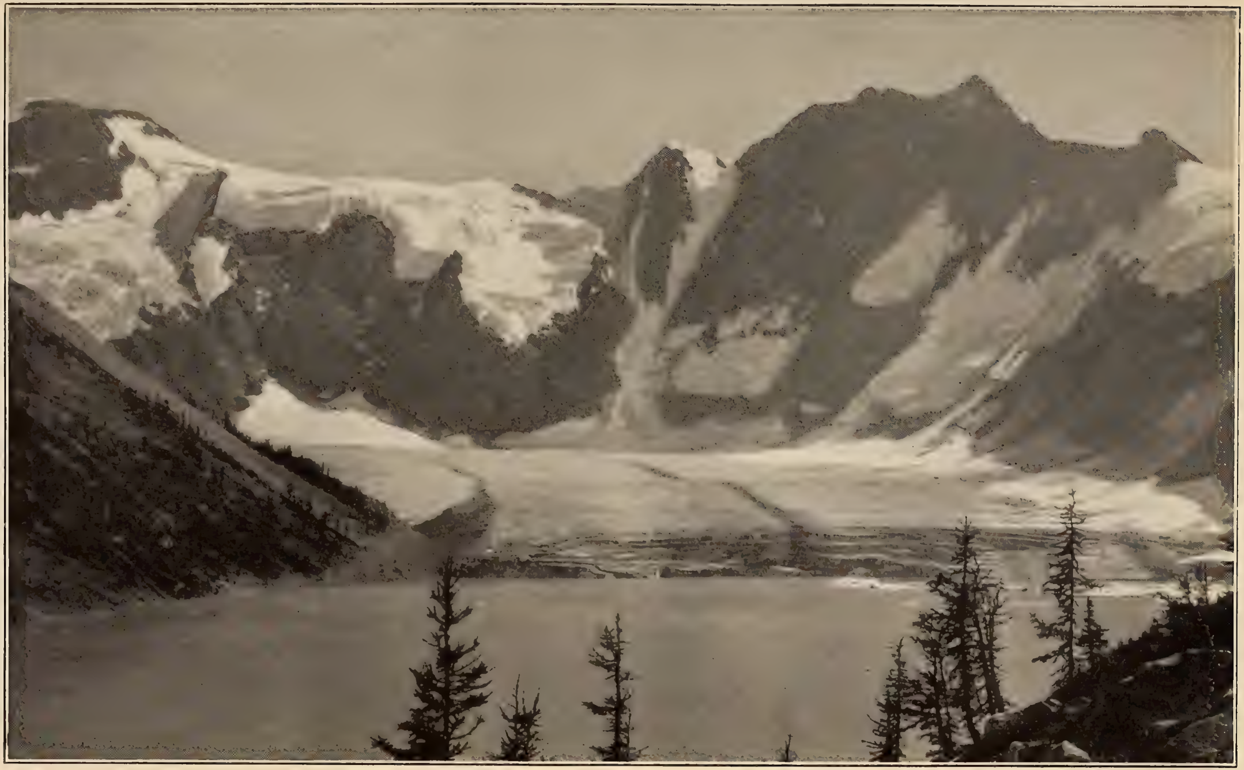
PIONEERING IN THE SOUTHERN SELKIRKS

By Marion Randall Parsons

The Selkirk Range in British Columbia forms a great mountain rampart around which the Columbia River makes its first long bend. The river rises near the Canadian border and flows northward for nearly two hundred miles before it makes its southward turn down through the famous Arrow Lakes toward the Washington line. The scenery of the Northern Selkirks is celebrated the world over; but the southern part of the range and the valley in which the Columbia rises are still off the beaten track of travel. The section described here, a part of the Purcell Range, is practically virgin ground to mountaineers.

My companion, Miss Lulie Nettleton, and I traveled northward by train from Spokane to Cranbrook in British Columbia, and thence motored ninety-seven miles to Lake Windermere. For more than half of the way our road followed the valley of the Columbia, bounded on the east by low, outlying spurs of the Rockies and on the west by outposts of the Selkirks, through forests of ponderosa and contorta pines, Douglas fir and western red larch. We reached Upper Columbia Lake in time for an early dinner; then drove on through the sunset, past the aspen-bordered lake, past curious "hoodoo" cliffs of white clay, into the deepening dusk. The pines, outlined at first against the sky, merged gradually into the shadows till only the sudden blotting out of the stars gave token of their presence as we sped by. Darkness hid Lake Windermere and the cluster of little towns about it—Windermere on the eastern shore, Athelmer at its foot, and Invermere on the western side.

Invermere, where we joined Mr. and Mrs. Herbert W. Gleason and Mr. E. W. Harnden of Boston, is prettily located on a bench above the lake. It is a pleasure to remember our short stay there—the lovely lake with its circle of low, cloud-capped mountains, the comfort of the hotel, the old-fashioned



LAKE MAYE

Photo by Herbert W. Gleason

SOUTH FORK OF HORSETHIEF CREEK
Photo by E. W. Harnden

English posies of its garden, and above all the cordiality and courtesy shown us by the towns-people.

On August 28th we started on the trail, accompanied by Dave Brown of Invermere, our packer, soon to become our comrade and fellow mountaineer. Our outfit was carried by three pack-horses, and two saddle-horses and a frivolous two-months old colt completed the party. A wagon road leads from the town of Wilmer up Horsethief Creek as far as an abandoned logging camp at the junction of the North Fork. Here we made our first camp. The lower part of Horsethief Cañon has been sadly devastated by logging operations and forest fires; but our camp, though on the edge of one of the worst burns, gave promise of the beauty to come. High cliff walls were all about us, and masses of epilobium and delicious red raspberries, and patches of willow and cottonwood were making brave efforts to cover the ugly traces of forest ruin.

We made about fifteen miles the second day, most of it up a gentle grade following the river rise. The lofty cañon walls were beautifully sculptured, and above the side cañons we now and then caught glimpses of wilder and more rugged crests where small glaciers hung. Near the junction of the South Fork we had to ford the muddy glacier river, and here our extra saddle-horse protestingly proved his usefulness as he was led back and forth through the icy torrent till all were ferried across. We soon discovered that we were the first party to travel the upper trail this season, for many wind-felled trees were strewn across it and frequent ax-work was needed to clear the way. As we climbed higher, woods of Engelmann spruce and balsam fir replaced the Douglas fir and larch of the lower cañon. Indian tepee poles, brush-built traps for lynx and bear, and wedge-like apertures chopped in tree trunks where marten traps are set in winter gave to this part of the trail an old-time pioneer flavor that added much to its charm.

Near the head of the cañon, about half a mile below the terminal of the Starbird Glacier, we made camp on a wooded bench above the river. Close at hand was a spring of clear water; behind us a high cliff towered; and a white snow cornice crowned the opposite wall. From the river bank the Starbird Glacier was visible, and above it rose a spur of Mt. Monica, a beautiful peak mantled wholly in ice and snow.

The next morning we started on a one-night knapsack trip to Lake Maye. We forded the river and set off through the "muskeg" of the cañon bottom—a thick turf of wiry grass undermined by swampy bogs wherein the unwary traveler plunges to the knee. After fighting our way through this and up a steep slope of tangled forest, we emerged on the more open brow of a cliff. Below us a stream rioted in sparkling cascades, and on the opposite wall of Horsethief Cañon another cascade poured down from a high-hung glacier. Later we turned up a small side stream. Bright mosses, in which we sank ankle-deep, grew close to its bed, and even at times so encroached upon it that the stream undercut them and flowed by unseen. Soon we reached an upland park country, adorned by patches of parnassia and delicate cassiope bells. Fir and spruce gave way in turn to the Lyall larch, a picturesque species which here forms the bulk of the timberline forest.

At last the lake lay before us, a lovely sheet of robin's-egg blue, about two miles long and perhaps a mile wide. Across its whole upper end stretches the great front wall of a glacier which breaks off into it in ice cliffs from fifty to seventy-five feet high. On the dark mountain walls hang nine smaller glaciers. Some of them deeply overlay the summit rocks and form smooth white cornices that break in sharp blue cleavage lines above the cliffs; others flow down the gorges and declivities of the mountain-sides in magnificent ice cascades; still others hang on the steep walls with precipices above and below. Avalanche voices are never long silent, for from all of the glaciers masses of ice are constantly falling, to be gathered together and welded into the great piedmont glacier that flows with such fine, broad, sweeping lines into the lake, its late bed.

We dropped our knapsacks near the outlet, crossed it, and made our way along the easterly shore over talus piles, composed partly of granite, partly of slate and shale. We reached the front of the glacier and walked out on its deeply fissured surface, anxious to follow it high enough to get a view around the bend into its upper basin. But sunset was drawing too near for us to venture far among its crevasses, and reluctantly we turned back.

Our knapsacker's camp in the lee of a great boulder was very cold in spite of a big fire of larch stumps. All night we heard the thunder of falling ice and at dawn found a wonderful show prepared for us. The whole surface of the lake was covered with a thin sheet of ice and strewn with new-born icebergs which stood there white and motionless, like a fairy fleet at anchor. The mountain walls shone dimly behind a veil of mist. Utter stillness lay over the whole basin. Even the marmots and little-chief hares, so shrilly remonstrant of our presence the day before, were silent, cowering in their homes before this vanguard of winter. On the low damp ground near the outlet delicate frost-flowers were in bloom, a crystal garden with thread-like stems and branches of iris-tinted ice.

Gradually, as the sun rose higher, the ice relaxed its hold. The glassy film that mirrored bergs and mountain walls was shivered and broken. With a sharp, crackling, tinkling sound a berg here and there toppled from its motionless stand and set sail toward the outlet, fairly started at last on the final swift lap of its long journey from the mountain summit to the sea. These fairy craft were infinitely varied in form and size. Floating castles with walls and moat and arched entrance; flat barges, bearing cargoes of broken rock; giant frogs and turtles; ships in full sail; a Lohengrin swan drawing a shell-like boat—all came drifting slowly down the current to wait near the outlet their final release under the kindly action of the sun.

The morning hours sped by unnoticed as we watched this grand review, and before we even remembered our project of climbing the western wall, it was time to return to our main camp.

The following day we spent reconnoitering a route to the summit of an unnamed peak, on whose conquest we had set our hearts. It is very likely the high peak seen a few years ago from the Bugaboo Creek region to the north by A. O. Wheeler and Dr. Longstaff and described by them as "Eyebrow," and is probably the highest of the vicinity. This mountain, later named Mt. Bruce in honor of a gentleman of Wilmer, could be approached only over the Starbird Glacier. We had a wonderful afternoon on this glacier, one of the largest in the Selkirk Range. An interesting feature is its unusually well defined medial moraine, a long, curving embankment of broken rock and boulders fifteen or twenty feet high which extends back about five miles to the entrance of a large tributary from Mt. Monica.

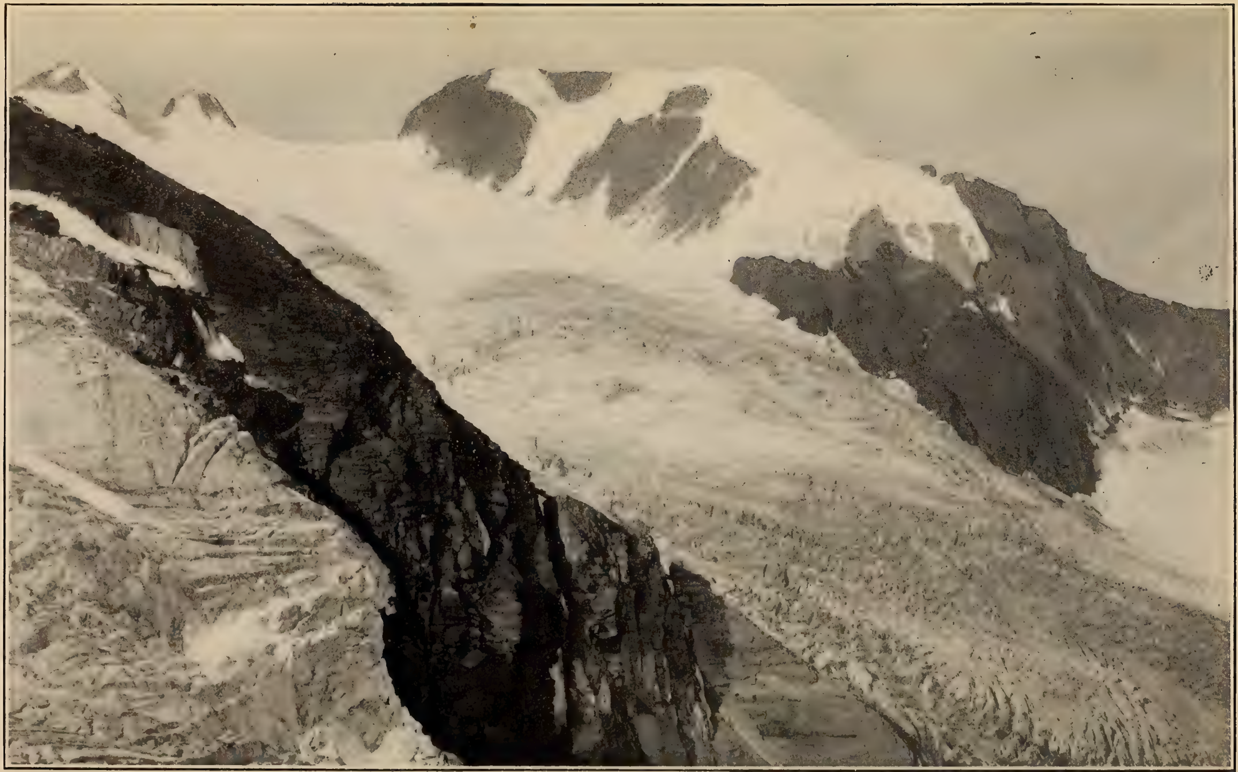
By sunrise next morning we were well on our way up our glacial highway. Below us the cañon lay shadowy and dark, but far down the valley the jagged crest of Sally Serena glowed in the early sunlight. The cornice of snow above us and the white "Jungfrau" ahead likewise shone with sunrise color, and long sunbeams shot across the cañon and touched the craggy walls where mountain goats could be seen pausing now and then to watch us as we toiled so far beneath them. At its lower end the glacier was entirely free from snow and its unfissured surface made rapid progress possible; but as we climbed higher it was broken by high seracs and ice cascades, and by deep crevasses that stretched across the greater part of its width. Back and forth we traveled to find a passage amongst them, walking perhaps a quarter of a mile to win a hundred yards. To gain time we cut across the ridge on our right, around which the glacier made a long bend, and climbed up and along it toward the glacier's higher fields.

At about the 9,000 level we struck out across the glacier with the summit directly ahead. Once fairly out upon it we could begin to appreciate the magnitude of this vast amphitheater of ice. A field fully three miles wide separated the ridge we had just left from the peak of Bruce and stretched beyond it in unbroken splendor to the West Kootenay Divide, five, perhaps six miles away. On this western wall a shallow rim of rock only occasionally was visible along its crest, for in many places the ice swept to the summit and broke off in a cornice on the Kootenay side. From a wide bench on the flank of Monica, the shining guardian of the West Kootenay Divide, another majestic glacier flowed down to join the Starbird; and beyond Monica's glorious front other tributaries from the "Jungfrau" and from northward facing cirques along the basin's southern wall added their splendor of snowy fields and blue-shadowed cascades.

Mt. Bruce itself was a massive pyramid of rock that rose over two thousand feet above the point where we began our

MT. BRUCE AND UPPER FIELDS OF THE STARBIRD GLACIER

Photo by Herbert W. Gleason



ICE CASCADE ON JUMBO GLACIER
Photo by Herbert W. Gleason

traverse of the glacier. We had decided that our most practicable route would be to follow the glacier's highest arm and swing over to the ridge of rock beyond. And so it proved, for the eastern ridge, which we tried, was inaccessible. Before attempting the steep snow-climbing just below the bergschrund we roped ourselves together, for many treacherous crevasses lay hidden beneath the snow. With little difficulty, however, we gained the ridge, and after a short scramble among loose rocks and overhanging ledges found an easy way over the névé and the upper slopes of shale to the summit. There we held a joyful celebration of our victory, ceremoniously christened the peak Mt. Bruce, and built a great cairn in which to deposit our record. The names registered were E. W. Harnden, Lulie Nettleton, Dave Brown, and Marion R. Parsons. From aneroid readings, later corrected at Windermere, we estimated Bruce to be about 11,250 feet, some 6,000 feet above our camp. Mt. Farnham, ten miles to eastward, was estimated by Captain and Mrs. A. H. MacCarthy of Wilmer, who made its first ascent only a few weeks before our climb, to be 11,090 feet. A third peak of the region that we judged to be well over eleven thousand has not yet been climbed.

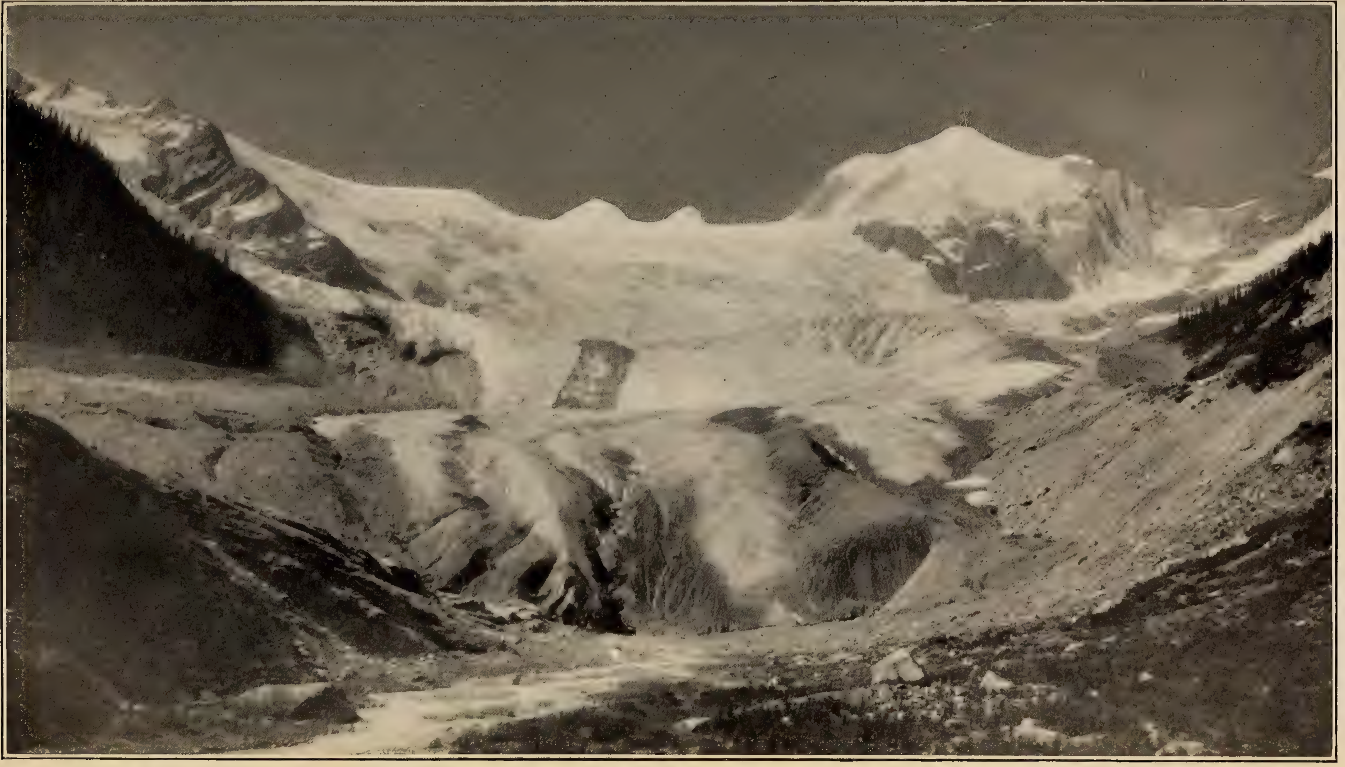
One disappointment awaited us—a smoky atmosphere made it impossible to get any photographic record of the wonderful summit panorama. We were able, however, to get compass bearings on the principal peaks and gain a very good general idea of the almost unexplored region about us. The most impressive feature was the enormous expanse of ice, miles and miles of white fields gleaming behind the ruddy smoke veil like sunset glories half hidden in fog. The Starbird Glacier, that filled a basin eight to ten miles wide, was but one of many. On the north of Bruce the snow cornice that formed the actual summit, crowned a wonderful icy precipice whose avalanches fed the North Fork Glacier. East of Bruce the low North Fork Divide was entirely crowned by the Starbird Glacier, which flowed in a horseshoe bend into two watersheds. And each of the countless peaks along the range, most of them unclimbed and even unnamed, bore its shining burden of ice and snow.

Amid this icy wilderness our attention was centered on the great white mass of Jumbo, a peak, or rather group of peaks, on whose conquest we had likewise set our hearts. But the story of the Jumbo climb must still remain unwritten, for the latter part of our journey was largely a record of storms, delays, and disappointment in the end.

The day after our triumphant climb we shifted camp to another base, but were no sooner settled than rain overtook us. On September 7th, after several storm-bound days, we attempted Jumbo and were within sight of its summit when a storm broke upon us and drove us down. The snow, a gentle descent at first, light as thistle-down, was soon a sleety mass driven against us by the rising wind until cheeks and ears tingled, eyes were blinded, and our clothing was coated with ice. We made record time down over the glacier, fearing that if snow once obliterated our tracks we might experience dangerous delays in groping our way among the network of open and blind crevasses, among which we had so slowly made our upward way. We were barely off the upper fields when a magnificent thunderstorm broke, whose tremendous reverberations among the lofty peaks above us did much to reconcile us to our inglorious but safe return.

These days of storm that brought our mountaineering summer to a close had, after all, their own inimitable charm—the sifting of new-fallen snow on the dark ledges of the Farnham Group; the low-lying clouds that drifted across their cliffs; the marvelous storm-clouds that were gathered on Jumbo, and rent apart, and sent by the wind flying upward across its icy face; the glorious wealth of color that the frost painted on the aspens and dwarf birches, even upon the epilobium leaves, making the plants bloom again as in a second spring. And how glorious were our campfires, their sparks flying high aloft in the stormy darkness, and how warm and ruddy the firelight shone on faces grown so familiar and dear in these happy days of trail and camp. But, even though it matters so little in the after days whether the summit be lost or won, we followed the trail homeward through the autumnal splendor with the sense of defeat strong upon us; happily so, perhaps, for all the more urgently are we compelled to return to this glorious mountain country and try again.

MT. DANA AND KUNA CREST FROM 1914 CAMP
Photo by Philip S. Carlton



JUMBO GLACIER
Photo by E. W. Harnden

WITH THE SIERRA CLUB IN 1914

By Bertha Gorham Pope

The Sierra Club trip of 1914 really began, as always, with that first vivid moment when one has made the irrevocable decision and knows for sure that he is actually to be numbered, for the first or the twentieth time, in that goodly fellowship up among the great glorious wastes of the California mountains. It is from that moment that one travels: hits the trail of the ideal at dawn with an airy ease—somewhat unlike that in real life, be it said—looks off across a world from rocky peaks, meets rare friends in strange guise and parts from them again, eats the simple savory food of the gods and knows their fellowship, and at night lies down in Arcadian simplicity with only a sleeping bag and a friendly slender bush between him and all the world around. Not always is the fancy of the prospective Sierran thus employed. He can be practical. He discusses shoes, down blankets versus wool, and makes lists illimitable for thirty pounds of baggage. During all this time of dreaming and of preparation, the affairs of the classroom or the office are regarded as but impertinent interruptions to the real business of life.

After such a period, and it is by no means the least happy part of one of the happiest experiences in life, we found ourselves at last, after a night in the Pullman, tearing along a somewhat crooked track above the foaming Merced river on our way to El Portal of the Yosemite. There had been a wreck a few days before, and our morning was piquant with expectation of seeing the overturned coaches below us at the river's edge, and we finally saw them. Some of our women (the night before) had so anticipated even more than a spectacle that they went to bed in stout Sierra boots and skirts—just as if one did not more closely approximate angelic styles in the usual garb of night!

El Portal was hot. After taking luncheon in the hotel, we packed our civic dress away in suit cases, wondering what it would look like after a month of such confinement, and packed ourselves into automobile busses for the seventeen-mile journey along the cliff and through the forests to Yosemite village and our camp beyond. It continued to be hot. The leather on the back of the seats was too heated to be touched by bare hands. But the world was beautiful. Below us, over its rocks, with fierce impetuosity, foamed the Merced river, which we were to see through much of our adventuring in so many moods and guises, even then still eloquent of the wild loveliness of Bridal Veil, the stormy power of Nevada, the crash of mountain cataract, and the cold purity of the melting snow of its earlier courses. Then came shady forests, and icy springs from which to drink, and at last the vision of El Capitan, Bridal Veil, and Yosemite Falls, all as overwhelmingly beautiful to those who see them for the first time as if they had never been the theme of countless descriptions and picture postals; as freshly marvelous to those who view them the hundredth time as at first.

Our Sierra Club Camp was on the north bank of the river, wide here and smooth of surface, green, swirling, and swift. A great flag showed gorgeous above it, stretched from the Commissary to the opposite shore. Gay Japanese lanterns swung among the trees. Here day succeeded day, and daily the party grew larger. The active prepared for the "high trip" by climbs to Glacier Point, North Dome, Eagle Peak, and Clouds' Rest; and the less active prepared, too, by walking as far as Happy Isles and by sleeping on the ground at night.

Ornithological wonders abounded in our midst. A Sierra hermit thrush so far forgot her name as to live among a group of five Sierrans, placidly brooding her eggs over the bed of one. A baby black-headed grosbeak regularly hopped into another camp group for a matutinal ration of cheese. A humming bird came along on another day and, spying a bright bandana handkerchief scattered with triple sprigs of red and black flowers, darted hopefully toward it. Into each flower of each sprig he industriously sank his little bill, over and over again, until all were thoroughly investigated. At the end of this fruitless activity, he sat down on the handkerchief as if he thought it were a shrub. This, we think, more than authenticates the old anecdote about Apelles.

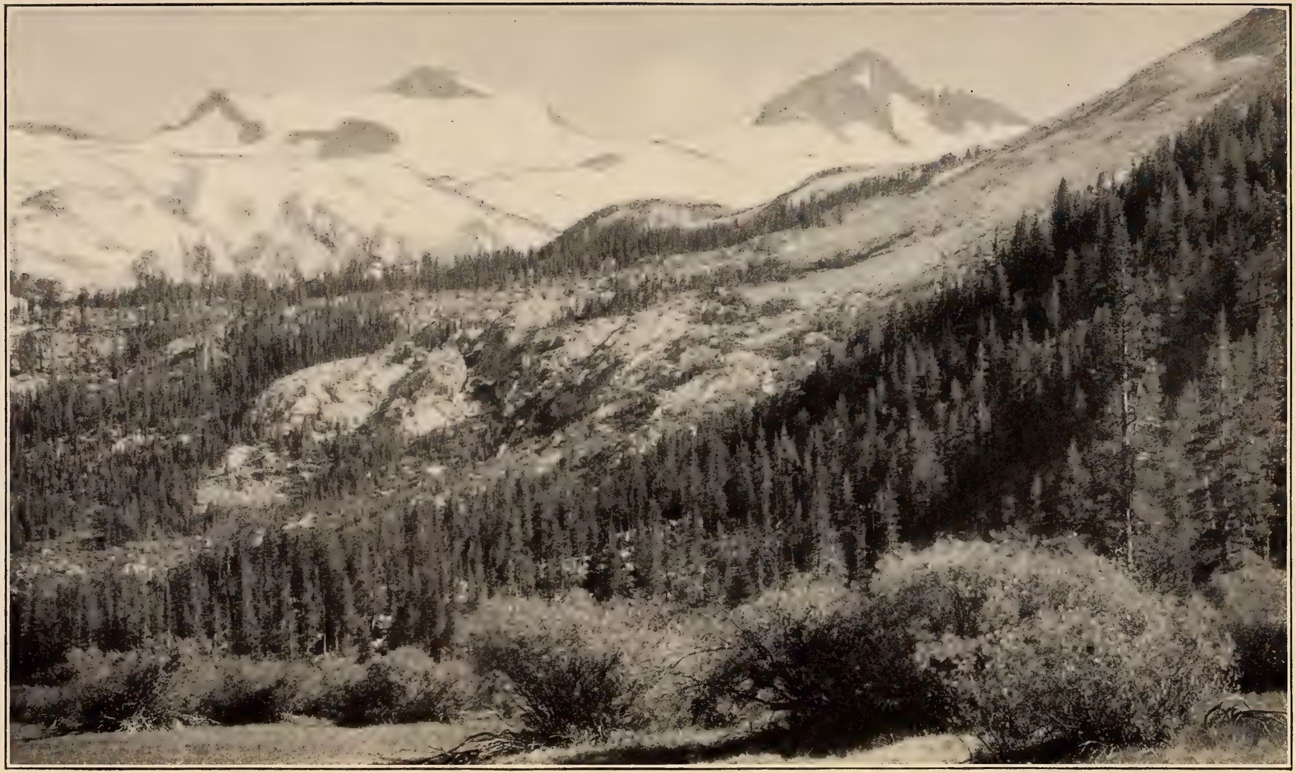
The great social event of the entire trip was the Club's participation in the Fourth of July celebration of Yosemite village. A parade, some two hundred strong, marched from our camp to the center of festivities, a striking example of the marvels that can be accomplished when creative genius works upon even the most frugal materials. From thirty-pound packs, of which one-half was composed solely of shoes, bed, and tooth brush, emerged elaborate costumes for a fife and drum corps, American Indians, Scotch Highlanders, Arctic explorers and tourists. Triumphant music led us on, and our path was strewn with veritable hard-tack. It may be added that a cash prize amounting to two dollars and fifty cents in American money was awarded to one of our number for the most beautiful costume of the day. Furthermore, a native was heard to murmur as we passed: "Do you suppose they've dressed up special, or is this the way the Club always dresses on its hikes?"

On Monday morning, the sixth of July, with numbers augmented to a grand total of two hundred and thirty-five we rose early and took up our march to Little Yosemite. Those of us who were new Sierrans learned our first two lessons of the march: that real hard tack, well chewed, is the sweetest of earth's gustatory pleasures, and that when to this is added a square of rich cheese and a bit of salty beef, the viands become sublimated, divine; also that water scooped up in a tin cup from cold rills of liquid Sierran snow quenches no mortal thirst. It is stage water, and the mere gesture of drinking is all there is to the whole performance.

It was a short trip and beautiful. Ever to be remembered was Vernal Falls in the gray early morning light, a tremendous, down-plunging solid column of water with surface marvelously fretted with darting rockets of foam and far up-flung spray; in that dim shadow of the cliff having none of the sparkle, the exuberant joyousness of Yosemite and Bridal Veil, as we had seen them in the sunshine, but somber, illusory, strange, lost in the cloudy mists at its base. Seeming possessed of a more actual personality than all the others, it was also the essential symbol, the permanent archetype of all great waterfalls, even as Hokusai saw and drew them.

Little Yosemite as a camping site is memorable—to all law-abiding folk at least—for the first real all-over bath, for in the valley one's way is hedged about by a paternal government, and one must keep out of that cool river, and splash about in a dish like a canary bird, or be content with a dry polish. Not least of all the pleasures of the Sierra Club trip is bathing in those mountain streams and lakes in green cold water that folds about one more soft than liquid silk.

The next morning, cheered by the memory of the ease of the first walk, and spurred somewhat, it must be confessed, by the unattractiveness of our camp site among scurvy tamaracks, we tenderfoots set gaily out for Lake Merced. We were to learn the measure of "a Colby mile." Understanding that the ascent of Cloud's Rest was but a mere stepping aside from the beaten track, we first made that, gratuitously. Then we went on, expecting to find Lake Merced around the next corner. We went and went. The great dark forests were all alight with blossoming azalea; the views from the ridges and from the wide glaciated slopes were thrilling with their snowy wastes and menacing gray peaks. We went and went. The Merced river foamed and fell by our trail. Then came groves of aspen, with leaves aquiver in the quiet, and pale, smooth trunks gleaming through the wood, like the bare bodies of bathers. And last of all we heard the bells of grazing ponies, and camp appeared—that is, to most of us; a few stragglers did not get in till morning. Mild men and moderate say that trip was twenty-two miles! It was long, but it was all glorious and we regretted not one inch of it.



MT. LYELL AND MT. McCLURE FROM THE HEAD OF LYELL FORK CAÑON

Photo by W. L. Huber

SUMMIT OF MT. LYELL, 13,090 FEET
Photos by W. L. Huber

For four full days our camp was pitched here. Near at hand were Lake Washburn, the Amphitheatre, and trout fishing. On Lake Merced was launched the famous "Colby Collapsible Canoe," and it collapsed only at proper intervals. Knapsack parties ascended Foerster Peak and Mount Clark, and a band of four hardy mountaineers set out for Mount Ritter, to join us again in Tuolumne Meadows.

When Sunday morning came, we climbed straight up the sides of the Lake Merced basin, for over one thousand feet, by what seemed, after a full breakfast, a sort of lifting-by-one's-boot-straps-exertion. The pack animals and a few others went by Vogelsang Pass, but the main party by Babcock Lake and Fletcher Creek. Here we first set our feet in snow and saw near at hand, sharp against the sapphire sky, snowy ridges. There was the zest and sparkle of winter in the air.

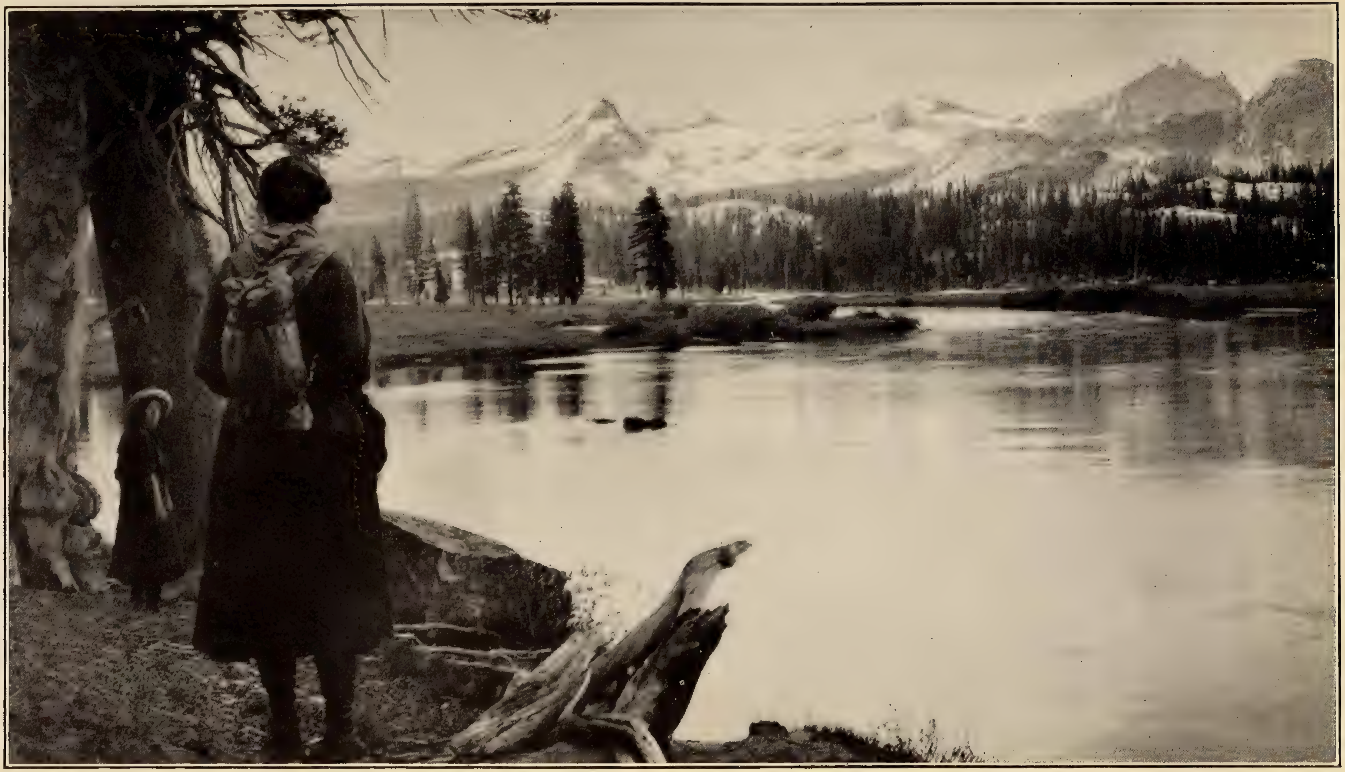
In beautiful Tuolumne Meadows the party stayed from the twelfth to the morning of the twentieth. Some sat happily in camp. One man insisted that the altitude was so great that it winded him to turn over in bed. Many intrepid souls went to Dog Lake for swimming and mosquito inoculation, to Lake Elizabeth for fish, made the treacherous ascent of Lambert's Dome, or sought Soda Springs for soft drinks. Still others went further afield and climbed Unicorn or Cathedral Peak. One good-sized party ascended Mount Dana, taking two days for the trip.

By far the largest side trip of the summer was that up Mount Lyell. At the beginning of the slope, at the eastern end of the meadows, the base camp was pitched. Nature surely never meant that spot for a camping site. Abrupt from the swampy meadow rose the rocky steeps of the range. The women's quarters were on a succession of stony shelves, so narrow that the sleeping bags had to be supported on the outer edge by logs or boulders. Bed was separated from bed by a patch of yet unmelted winter snow. At seven the purposeful party prepared to retire. The night was very cold. By each bed rose, in the motionless air, columns of bright flame from little individual campfires, lighting up the under side of dark evergreen branches above, and revealing among the tree trunks mysterious cowled figures that were settling their domestic arrangements for the night. Later there was silence, dull glowing coals, wisps of floating smoke, the crisp exuberant rush of numerous snow water torrents, hurrying down over the rocks by our pillows, and finally slumber that had almost the quality of gaiety.

Abruptly, out of strange joyous nothingness, came from below the long-drawn waking cry, mysterious, dimly apprehended through dreams at first, then taken up and made an intelligible reality by neighbors far and near.

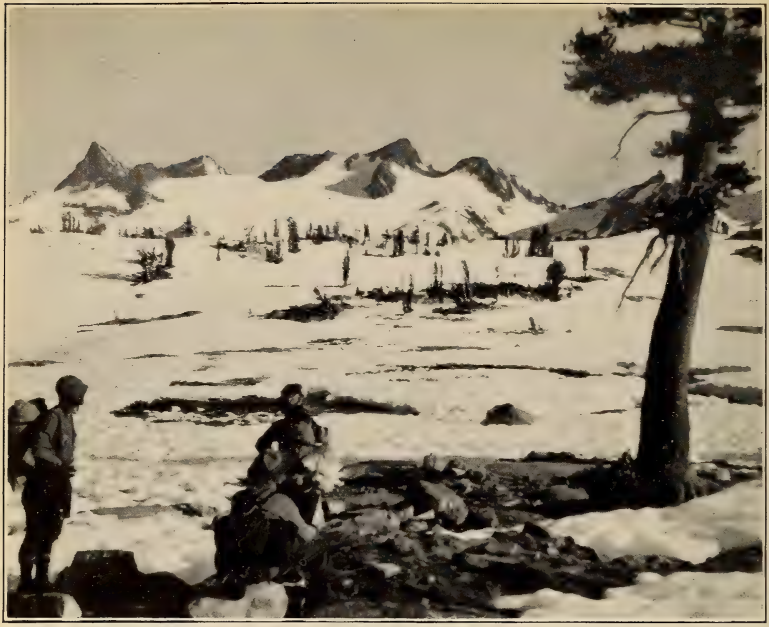
Our rocky, forested shelf was dark as midnight, but we knew the hour must be three. High in the sky a clear moon was sailing, and great stars glittered through the black boughs. Dying coals were stirred up into smoky light, numb hands fumbled with shoe laces, and ablutions were made in rushing streams of ice water, perceived not at all by sight, but solely by their whispering, dashing sound, and by the breath of cool spray in our faces as we bent to the sound.

Blackness turned to grayness as we rolled our beds and kicked them before us to the commissary below. There in the dawn, anticipating snow-burn, we made our faces strange with grease paint and pot-black. Soup and beans and coffee, taken standing from tin cups, is after all a ghoulish feast at that hour in the morning, and one that could not hold us long. In cohorts of ten, each under competent leaders, every soul numbered and keeping his place, our long line was formed, and we began to step up, up the first incline of the huge mass above and beyond us. Among the rocks there was grass at first, and flowers, hoary with heavy dew, and we crushed these in a narrow trail under our hob-nails and brushed the cold wetness from the bushes with our garments. Soon the sky was flooded with rose and purple hues, succeeded by the sun, beating never more warmly on our backs. On we climbed through stunted tree growth and rocks, then rocks only and increasingly large stretches of snow, leading up to the huge rock pile of Lyell in the distance. This snow had melted unevenly, so that its surface was a succession of pits about a

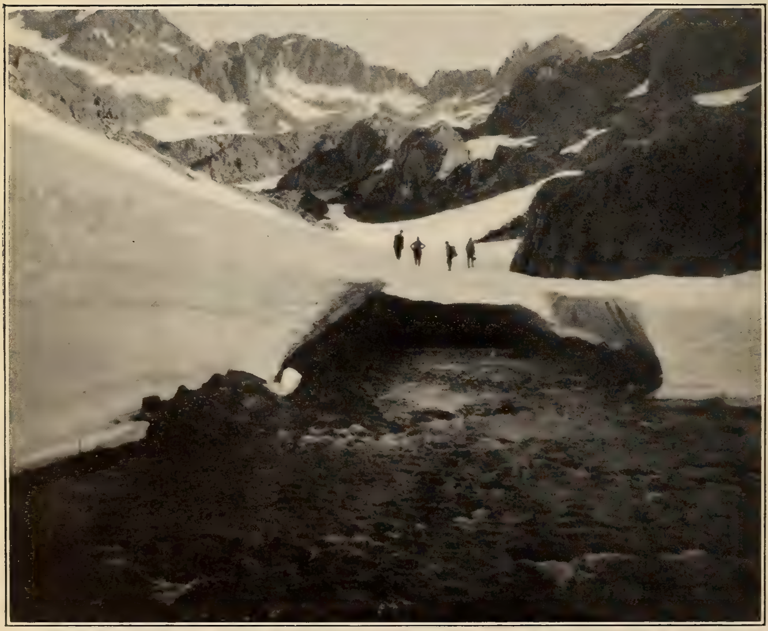


LOWER TUOLUMNE MEADOWS, CATHEDRAL RANGE IN BACKGROUND

Photo by Philip S. Carlton



BANNER PEAK FROM RUSH CREEK
Photo by C. W. Michael



SNOW BRIDGE NEAR HEAD OF NORTH FORK OF THE SAN JOAQUIN
Photo by C. W. Michael

foot deep and a foot and a half across. This and its softness made travel hard enough for those in front, and the leaders sometimes sank knee deep; those in the rear found merely a hard-beaten boulevard for their feet. The sun was blazing, and we were almost too warm, save for toes refrigerated by waits while we gathered breath for the long ascent in the thin air.

At last, after a more or less cautious scramble on hands and knees over the loose rock chimney, we were at the top, 13,090 feet above sea-level. There was no sea in sight, but everything else in geography seemed to be there; vast snow fields, desert, lakes, the huge red bulk of Dana, wicked-looking Ritter, and everywhere a wilderness of jagged peaks. At first, however, we seemed less absorbed in these wonders than in the joyous chopping together in our tin cups of snow and several gallons of strawberry jam, and the subsequent consumption of this "Sierra sundae." Of the seventy-nine who left the base camp, seventy-eight reached the top, and this language does not indicate a casualty, but a mere decision to halt by the wayside.

Our perfect man-behind-man formation on the way up the mountain was utterly abandoned on the way down, perhaps on the assumption that the main object in life was to ascend Lyell and that one's after career could be of little consequence. In spite of a certain regrettable damp softness of the snow, the party slid with whoops of joy, down whatever slope they might find, by a simple, untrammeled method for which they would unfailingly have been spanked by their mothers in years agone. But Sierra suiting is stout, and we risked all at a plunge, as it were, and did not mind a resultant cool freshness attendant on the rest of our journey. And we had to wade through torrents, in any case. By two o'clock we were eating luncheon at the base camp, and we had a real supper—think of exotic clam chowder in the meadows—with the main party.

The acme of our dramatic season was the vaudeville performance given towards the end of our stay in Tuolumne Meadows, and the acme of this performance was the original play, entitled "The Heiress of Soda Springs." One of the finest bits of realistic effect ever secured on the stage was when the solicitous Knight revived the fainting heiress by pouring into her face a five-gallon pail of water freshly dipped from the icy river. Her gasps were apparently genuine, really life-like.

Conness Creek was our next abiding place, and from here a large party, in six separate groups under leaders, departed on a four day's knapsack trip down Tuolumne Gorge to meet us later at Pleasant Valley Camp. They were attended the first day by a large number of followers, who went down over cliff and through brush far enough to get a taste of that particular sort of travel in which we keep "hitting our packs and shoving the trail along," and to behold the magnificent great water wheels of the Tuolumne. The main party, with numbers thus reduced, proceeded to Matterhorn Cañon. The day was made memorable by wonderful trees, the beautiful first view of Matterhorn Peak and Saw Tooth Range, banking the horizon like the world's outermost ramparts, and by the twilight descent through a virgin forest of indescribably solemn and magnificent hemlocks, to where, beyond the swirling river, the campfire smoked up through a ghostly forest of bleached, gray, dead trees.

In this camp the quarters of the married people were high up on a rocky shelf which rose, stage-like, just above the quarters of their more fortunate—I use the word advisedly in regard to locality only—fellows. The camp-fires were our footlights; shelter there was absolutely none, save that afforded by altitude or by the politeness of those below; and I heard my neighbor humming as she strewed out her bed:

"The night has a thousand eyes,
And the day but one."

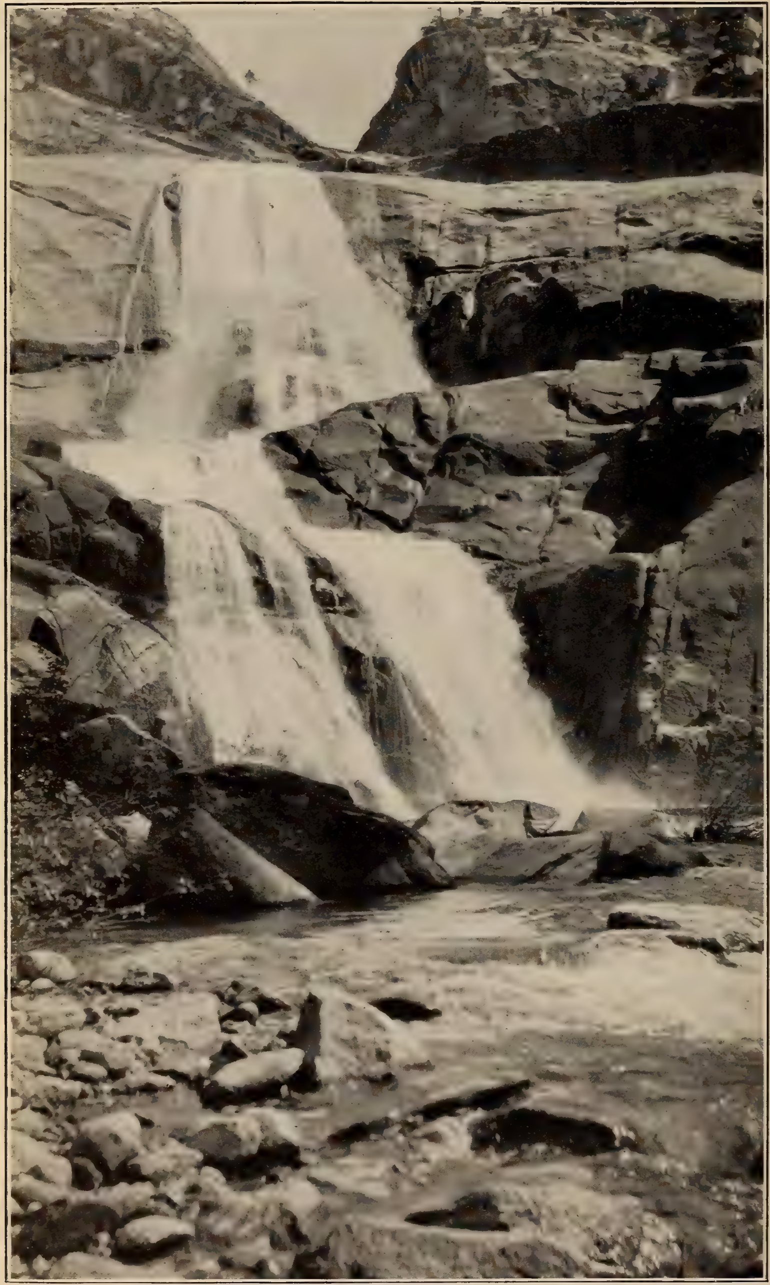
In the morning, we climbed up over Benson Pass with its wide view of dark lakes set in distant snow and a peak-encircled-horizon, and rounding the gaunt gray prow of Volunteer Peak, finally came to the shores of Rodgers Lake.

SLIDING DOWN GLACIATED GRANITE
Photo by Marion Randall Parsons

THE LARGEST OF THE WATERWHEELS
Photo by C. W. Michael

AT THE WATERWHEEL FALLS
Photo by W. L. Huber

FORDING THE TUOLUMNE NEAR
CONNESS CREEK
Photo by Hazel Roberts



FALLS OF CATHEDRAL CREEK, TUOLUMNE CAÑON
Photo by Robt. L. Lipman

of all our camping sites the most marvelous, the most brilliantly beautiful. Deep blue was the lake, shot through with sparkling light. Bright banks of snow and great dark trees made its setting, and gray peaks rose abruptly above it like the mountains of the moon. Its loveliness was unearthly. And when night came we looked straight up from our hard beds through black trees into a sky glittering with stars of equally unearthly brilliance. In the usual skies over our lowland country the stars seem mere twinkling punctures in a huge fabric. The eye strains to get a sense of perspective. But the stars above Rodgers Lake that night were silvery flames, globes of trembling fire, and some were terrifyingly near and some infinitely far away. No ripple broke the steel-blue surface of the lake, another firmament with great stars, apparently not reflected, but from its very depths "glittering magnificently unperturbed."

Yet next morning's journey was scarcely an anticlimax. Much of the day we saw constantly, between dark tree trunks, glimpses of the opposite wall of Tuolumne Cañon hung with the deep purple veil of space, or our way was through the brilliant garden of flowers that grow so gaily on the protected southern slope.

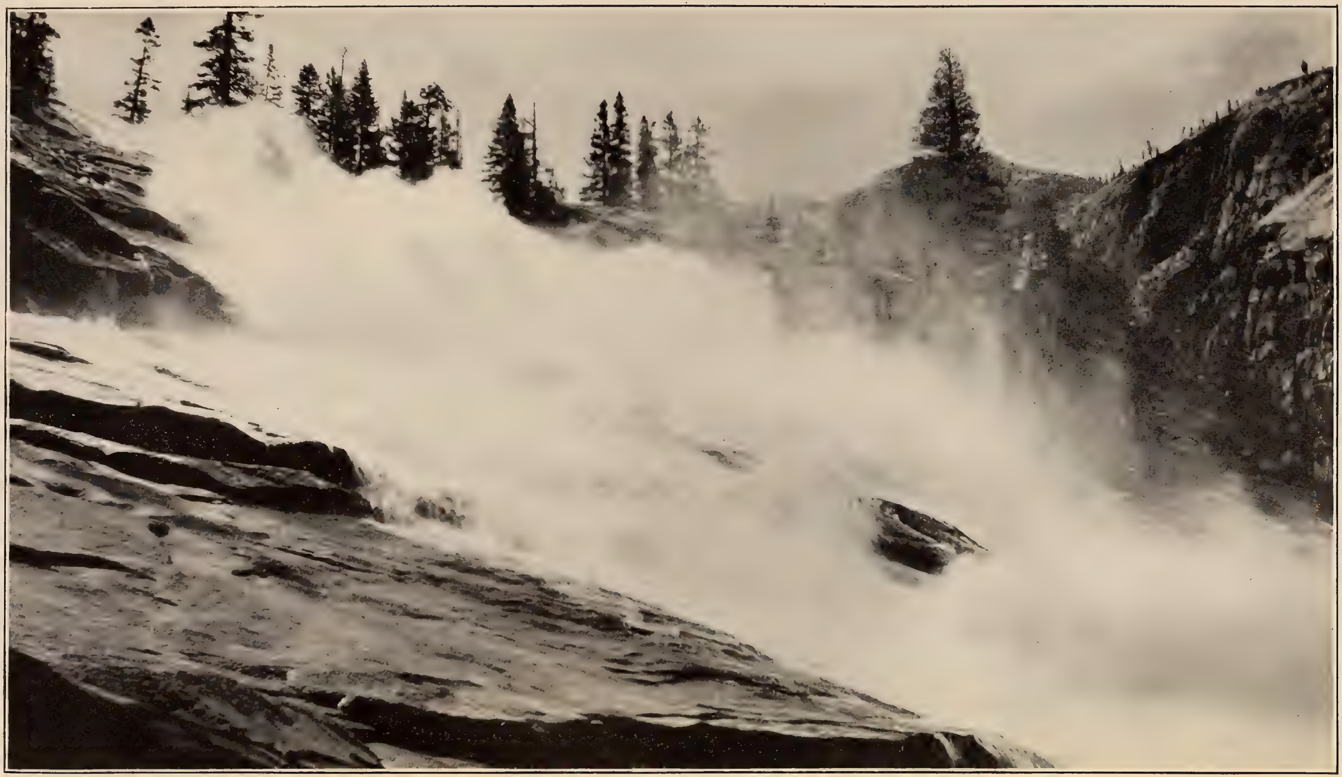
That afternoon at the camp in Pleasant Valley we were met by the Tuolumne Gorge detachments quite as expected, save that Mr. Colby's group had pressed on to Hetch-Hetchy, relying solely on the beauties of Nature and much corn meal mush for sustenance during a hard two days' march.

Rising at dawn may sometimes borrow from necessity a seasoning of pleasure, but the rising at half-past four, at Mr. Tappaan's instigation the day we left Pleasant Valley is in the minds of many, forever unforgivable, for after this superhuman effort we found ourselves still in the prime of the morning, after a six mile stroll through forest and open garden, in camp on Rancheria Mountain. It was unbelievable, and many could scarcely be persuaded to stop. Since the day was on our hands, so to speak, we killed a huge rattlesnake or two, and then climbed to the outlook. No place in the Sierra offers such a generous reward for so little effort as Rancheria Mountain. Climbing up a gradual slope through a stately forest of silver fir, one comes suddenly upon rocky crags. From the crest of these the very earth opens up into one vast blue abyss—Tuolumne Gorge. Swinging one's feet over a 5,000-foot drop one looks across to a mighty wall, itself more than a mile high, moulded in huge relief by the purple ravines, and decorated with irregular and vari-colored patterns of shrubbery and forest. Still farther beyond loom the cruel spiked peaks of the Merced and Lyell groups. Up the cañon Lambert's Dome gleams as an inconsequential lump in an ocean of huge peaks. To the northeast Conness heaves a vast, forbidding bulk against a billowy sky, while further westward the jagged Saw Tooth stands ferocious and defiant. Rancheria Mountain is practically the box seat to the entire Sierra display.

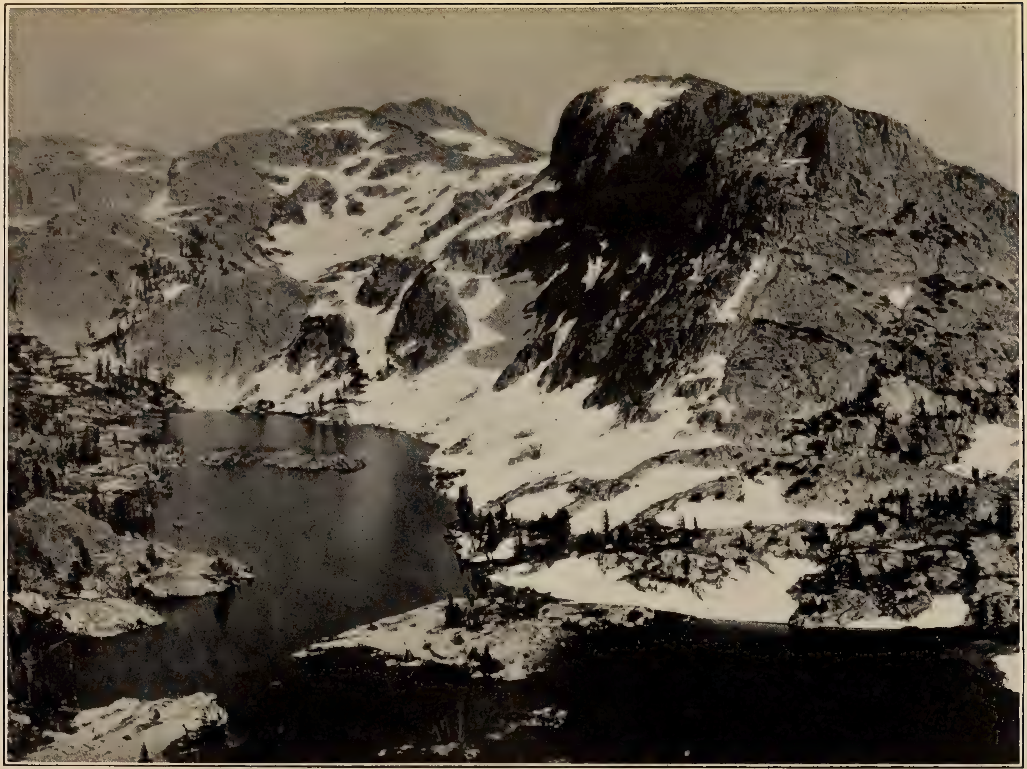
And now the end of the trip seemed in sight. We were to have but one more real camp, that at Hetch Hetchy. From this point on, people seemed more keenly appreciative of each bright hour, began to speak of the end, and of work, and of what they would order if they should find themselves with unlimited means in a good restaurant. The evening campfires became even more spontaneous, informal, with just that shade of regret, that sense of imminent end that makes happiness keener.

And all too soon, after a trembling moment of hope and fear on the automatic (sic) ferry, we were in our last camp in Hetch Hetchy, in that marvelous little valley, not so grand as Yosemite, but more luxuriant and quite as beautiful, with a gentler loveliness; there were reaches of wide green river overhung with trees, where a cataract foams with crashing laughter into a round emerald pool, set about with luminous azaleas, and where great falls plunge down from lofty cliffs above wide meadows. That our feet walked these paths and our eyes saw these things, we specially thank the gods, for much of this glory is soon to be "erased like an error and cancelled," offered up a living sacrifice on Utility's already prosperous altars.

Time speeds fast now. The last campfire comes, and we lie about it among old companions and new-made friends;



WATERWHEEL FALLS, TUOLUMNE CAÑON
Photo by Floyd Place



RODGERS LAKE
Photo by Bert Bare

we see the wide grassy meadow, the rich trees, the stars. We say good-bye. In the morning we march out, up over the ridge and on to Carlin's Ranch. The next day we are on the last long trail of all—and it is long. The climax is the steep sandy zigzag into El Portal, made cruel with loose sharp stones, ghastly hot from the red blaze of the noon sun and the dazzling reflection from the white dust. It is hideously protected from any breath of air, hung with arras of poison oak, and absolutely endless. That the club did not die in droves on its infernal descent is due to the power of the human will, sustained by superb physical fitness. But few men in all human history would have been glad to experience that zigzag. Shadrach, Meshach and Abednego would have felt at home, and Dante would have seized upon it, and by its aid given a new and deathless horror to his Inferno. But presently we are bathing in real tubs, with no need of keeping an eye on the landscape, are dressed in curious-seeming clothes, are dining from breakable dishes on white linen, conscious of much sunburn and feet unnaturally small. We go into the Pullman cars, and sit blinking under the glaring lights. The Sierra Club trip of 1914 is over and we are tired and yet rested, indescribably exuberant and yet somehow sad. There is only one Sierra trip in all the world, we think. Surely nowhere can there be such fellowship, such trails "Among the moody mountains where they stand, awed by the thought of their own majesty," such starry radiances of night. We go back to our work, in all respects save one like him who

> "In stainless daylight saw the pure clouds roll
> Saw mountains pillaring the perfect sky,
> Then journeyed home to feel within his soul
> The torment of the difference till he die."

The difference does not torment us, for we know with all surety that we shall behold these glories again and yet again. Already, as we lean back with closed eyes in our plush seats, we are planning for the 1915 trip, and plotting a cunning device by which we shall reduce our dunnage a pound and three-quarters.

THROUGH THE TUOLUMNE CAÑON

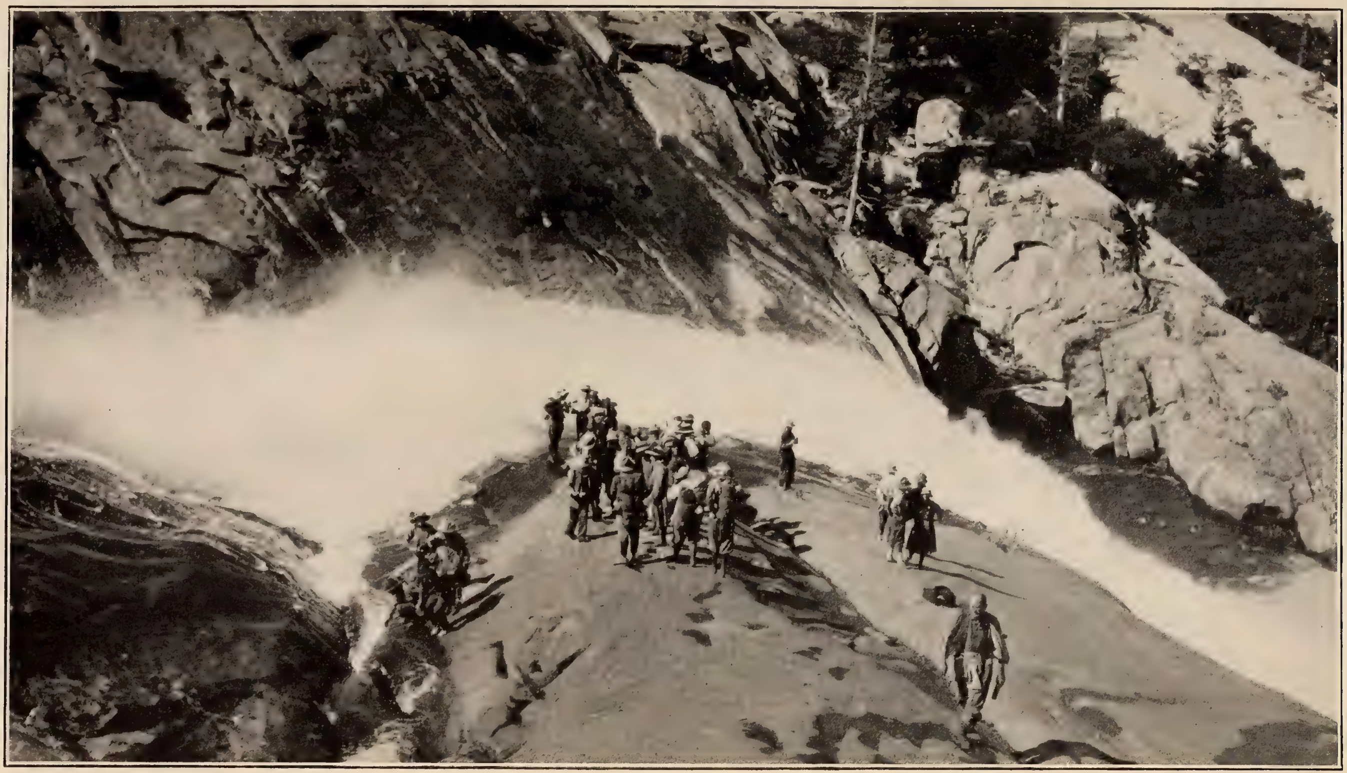
By Ellen T. Emerson

To all the novices on the 1914 outing the "Tuolumne Cañon Trip," as described by old-timers, seemed like an endless series of barbed wire entanglements separating an easy existence in the lap of luxury from an intimate knowledge of the sternest realities of life. Anyone rash enough to attempt the crossing of this barrier, if he survived at all, must emerge from it scarred, battered, famished, clothed only in tatters, but able henceforth to cope with all natural obstacles—a proven Sierran. Should we try? Was the reward worth the effort? We debated.

At last, on July 20th, at camp on Conness Creek, a number of us joined the veteran expeditionary forces as raw recruits. We drew our rations, sorted out a few necessities from the thirty pounds of luxuries in our dunnage and lay down for our last night of safe and sane slumber.

Tuesday, July 21st, saw the expedition, six officers, each commanding ten or twelve privates, set forth for the Cañon. Martial law was proclaimed and straggling was not permitted, although during the first morning's march a vast crowd of camp-followers, including a moving picture artist, accompanied the army to see the marvelous water-wheel falls. We crossed Conness Creek and followed the north bank of the Tuolumne, finding a fair trail at first and later enjoying the chance to "shoot the chutes" over long stretches of damp and slippery granite slides. The changes of our expressions during this pastime, as they passed from pleased anticipation through frozen horror into delighted relief have, I trust, been immortalized by Mr. Pillsbury.

To many of us the water-wheels and the splendid rush of white water over the smooth ledges between, were the most beautiful sight of the trip. We even envied the camp-followers who could stay all day to enjoy it, while we must press on after a tantalizingly short stay. At noon we bade the escort



SIERRA CLUB PARTY STARTING DOWN TUOLUMNE CAÑON

Photo by Marion Randall Parsons

CASCADE IN TUOLUMNE CAÑON
Photo by Marion Randall Parsons

farewell, and set forth for an afternoon of varied activity. We slid slides, we climbed rock piles, we fought brush, we crawled along cracks and had a thoroughly good time, finally crossing Return Creek on an opportune log bridge and making camp in a fine grove some distance further down the river.

July 22nd saw us at the head of Muir Gorge soon after nine o'clock. Here we rested on a boulder out in the stream, which gave us a superb view of the sheer walls and rushing water. To reach the further end of the gorge we had to climb a thousand feet up the north bank to the cairn, on the summit of a fine headland. After descending a steep slide, we crossed Rodgers Creek at some distance from the river and followed down its western bank till we came again to the Tuolumne. Here we found an even finer view of the gorge, with the two streams joining in the foreground and the high domes of the cañon rim towering behind.

We now followed the river again closely and by dint of very strenuous "hiking" and a final tussle with a thick growth of young cedars, we emerged late in the afternoon in a lovely open meadow of flowers, the upper end of Pate Valley.

To Eastern eyes, the anachronism of Queen Anne's Lace, columbine and golden-rod, blossoming side by side is startling but none the less delightful, and certainly the quiet meadow was a welcome sight. We crossed it quickly and established our camp near the mouth of Piute Creek. Rancheria Mountain loomed up majestically above us, and close to us were the great black oaks (one thirty-three feet in girth), whose acorns used to attract the Indians to camp under the edge of an overhanging cliff near by. Here we spent two nights and a lazy pleasant day, enjoying the flowers, the distant views, the interesting Indian picture writings on the cliff and on its flat ledges, the well-worn mortars, each with its pebble pestle for grinding acorns. For diversion we had excellent fishing, rattler hunting, bathing and swapping experiences with the other divisions of the army as they appeared. Each of us to this day firmly believes that his squad had the most hairbreadth escapes, and the most thrilling adventures—so we are all content.

Next morning the army divided, most of it returning to the main party by way of Piute Creek. Let us see the lower end of the Tuolumne Cañon with the four small bands who passed through it to the Hetch Hetchy. Crossing one channel of the Tuolumne just above Piute Creek on an improvised bridge, and fording a second channel nearly waist deep, we followed the south bank of the river very closely, leaving it occasionally when a huge rocky buttress blocked our way and had to be crossed by a steep and circuitous route farther inland.

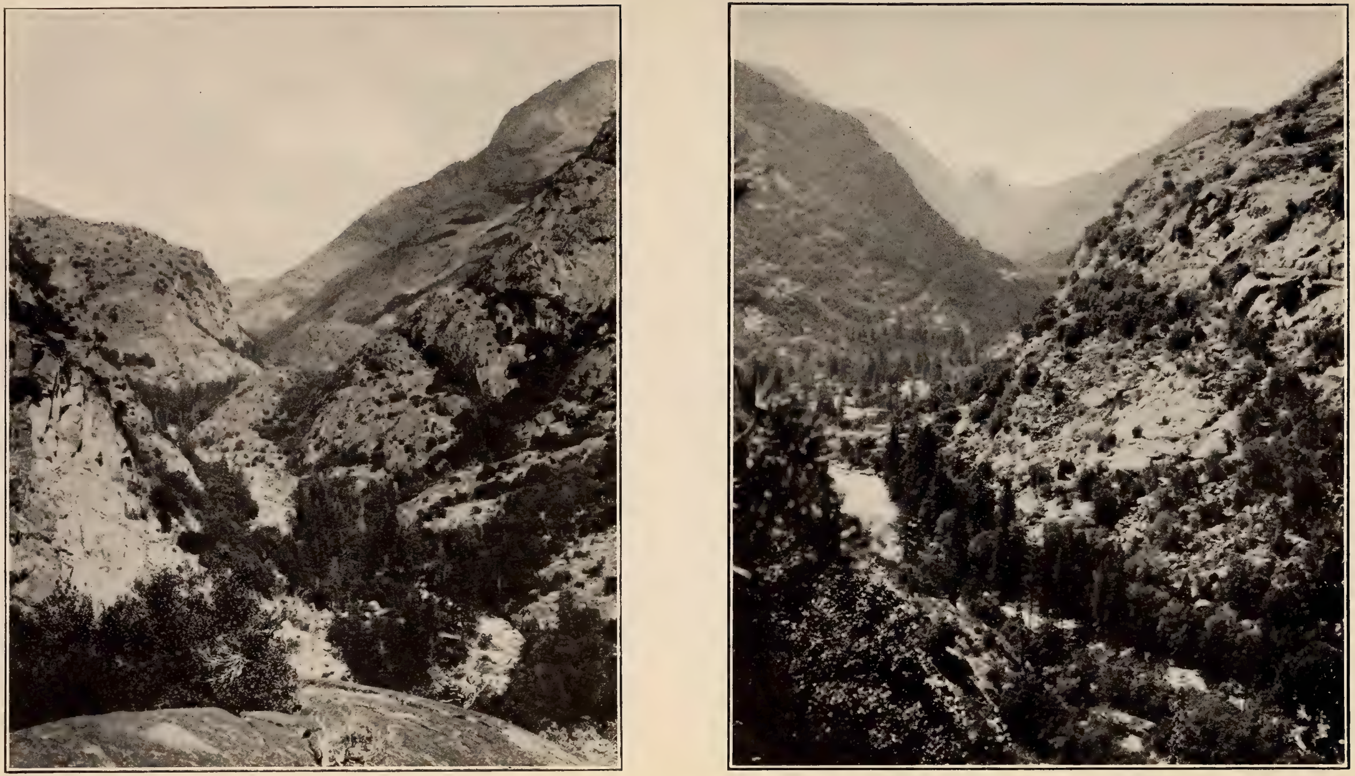
These scrambles were more frequent on the second day as we approached Little Hetch Hetchy and afforded us the pleasures of chimney-climbing, ascending human ladders, and dropping from "bough to bough" through scrub growth, with many a dusty slide and scramble and occasional falls. Often deer or bear trails helped us. We came on an aspen grove well scarred by claws of bears and mountain lions, but except for a nightmare rattler and a very realistic dream bear, we met no wild game.

It was restful to come on the quieter stretches of the river and the open spaces of Little Hetch Hetchy, and to see the wider valley beyond after our days by the rushing water and sheer cliffs and almost overhanging domes. And it was impossible to reconcile ourselves to the thought of drowning that beautiful meadow land under many fathoms of water, forced back by the proposed dam. The charm of the valley should not be lost. Fortunately for us the memory of our night there can never be submerged.

Early on the morning of the 26th we found ourselves on the good trail leading to the Hetch Hetchy itself and we all enjoyed the ability to lift our eyes from our feet and see the view with no fear of stumbling. We followed the trail to the base of Kolana Rock, where we carried the defenses of the club *cache* by assault (and battery), looting it most thoroughly and successfully.

And then we sat down and reflected, and suddenly a shocking realization came upon us. We had crossed the barrier, the stern realities of life were ours by right of conquest, also the lap of luxury (see *cache*), but we and our clothes were practically whole, hunger was gone, and we had not suffered anything worse than six extraordinarily varied and delightful days. "What an anticlimax!" you say.

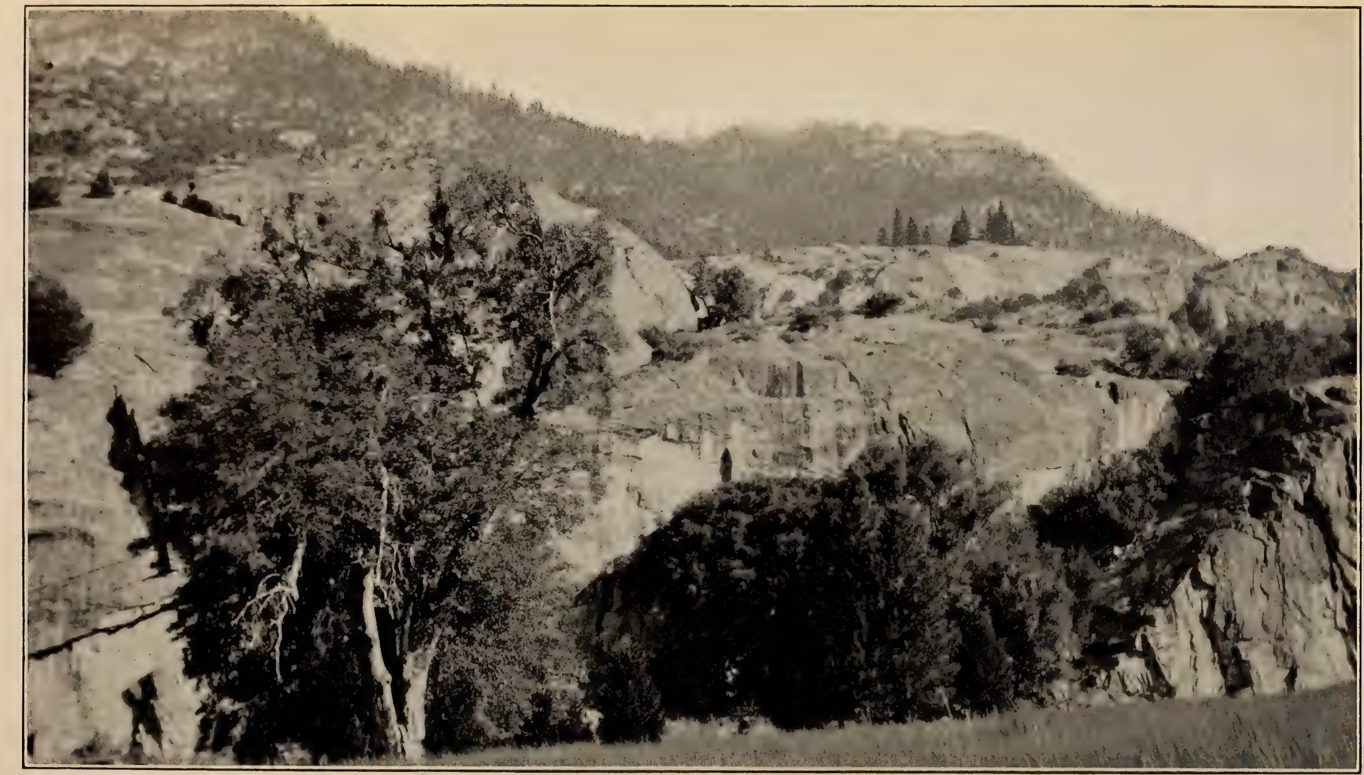
But not one of us will agree with you.



Looking East Toward Pate Valley

Looking West Toward Hetch Hetchy

IN THE LOWER PART OF TUOLUMNE CAÑON
Photos by Francis P. Farquhar



PATE VALLEY, TUOLUMNE CAÑON
Photo by Everett Shepardson

THE NORTH PALISADE GLACIER

By W. L. Huber

The Sierra has a particular fascination in the late autumn when signs of approaching winter are already evident. Then there is a certain indescribable stillness, perhaps lonely, but never oppressive, while the gray skies and the sighing of the wind in the trees seem ever to bear a warning of the storms soon to come.

In all of the high altitudes the nights are chill and frosty, so much so that sleeping out under the open skies is not a pleasure to some, particularly if this mode of living is not self-imposed. These conditions, together with the short days, make extensive travels infrequent. Return trips of one day from permanent settlements involve less risk and discomfort. Thus limited to a one-day trip, we started on the morning of an autumn day of 1910 from the hotel of the little town of Big Pine, westward and upward along the creek of the same name. The start of the trip was made with double team and buckboard. My companion, an officer of the Inyo National Forest, did the driving, a responsibility of which I am always glad to be relieved.

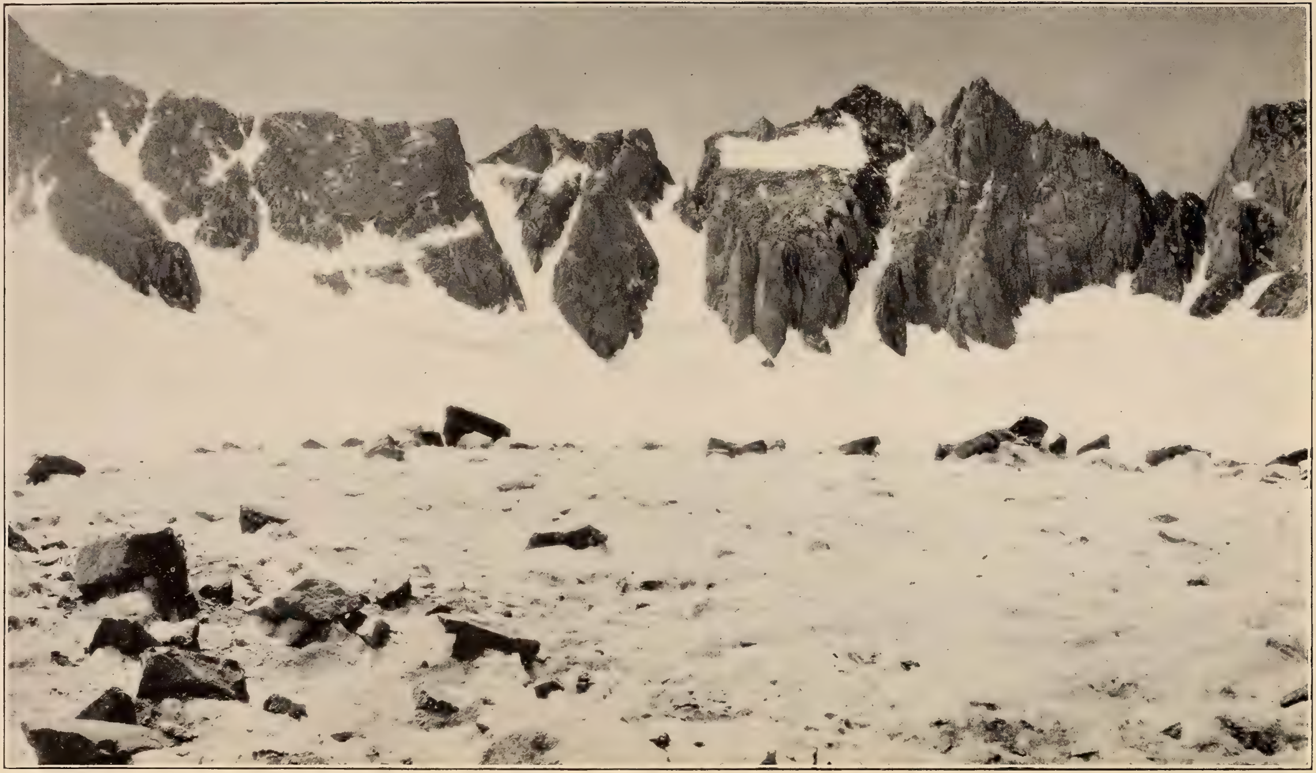
For nine miles a passable road follows close to Big Pine Creek, the lower course of which is marked only by a thin line of cottonwoods and aspens through the sage brush of the desert. This portion of the trip was very different from the general impression of desert travel. Neither heat nor glare gave discomfort. Instead we experienced only those features of desert travel which always remain with me as memories after the more disagreeable ones have been forgotten,—the beautiful coloring, the nearness of distant objects, the clear air of early morning and the pungent odor of sage brush. On this particular morning the view across Owens Valley was unobstructed and the coloring was at its best just before the sun appeared over the White Mountains.

The wagon road ends where the two forks of the creek unite, so here we left the team and proceeded on foot with camera and lunch up the main branch of the stream. Both forks afford inviting fields for exploration, but on this trip my work lay up the main branch. The trail soon passes two fine cascades at the upper of which the creek drops about seventy-five feet quite precipitously.

At an elevation of 10,000 feet we came to the end of the trail and the lowest of the lakes on Big Pine Creek—a fine rock-bound lake. Directly across it is one of the grandest cliffs I have seen anywhere in the Sierra, rising 2,000 feet almost vertically. This cliff is the face of a peak whose elevation is 13,016 feet. It has since been named Temple Crag (See Sierra Club Bulletin, Vol. IX, No. 1). None of the lakes on Big Pine Creek have been named, although a very small log-crib dam has been built at the outlet of the lower one to store water for irrigation. From a little distance the waters of this lake appear milky, probably due to detritus from the glaciers above it. Upon close examination of these same waters I found that they contained myriads of very small insects.

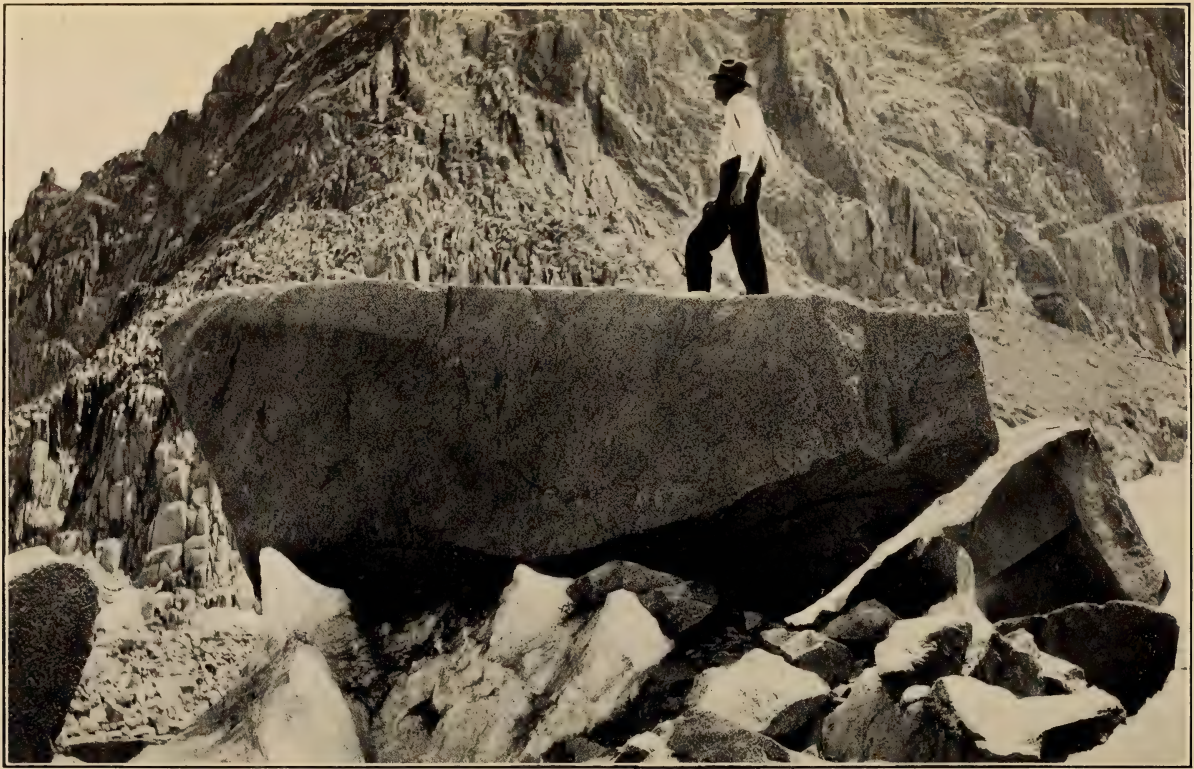
A short climb brought us to another lake on a rocky shelf just above the first lake, and here ended our duties. I had for several years been anxious to explore the region about the North Palisade which lies on the crest of the Sierra just at the head of Big Pine Creek. On this occasion I was not prepared for a trip to the region, but was unwilling to return without at least a look at this giant and at the great glacier which has such a pronounced effect upon the stream-flow of the creek. To gain this view I proposed a hurried climb up the rocky north wall of the cañon to some point from which we could see over the intervening cliffs. Then I started down with hopes that I should again visit this region and that the next trip would be made earlier in the season and with pack animals and equipment suited for going farther. A strenuous tramp brought us to the team at dark. The drive across the desert in the night completed an interesting day.

August 10, 1912, almost two years after my first visit, found me again at the lake below Temple Crag, this time with four companions and provided with pack train and ample camp equipment. The next morning the duties of one of my companions took him down to the valley. The remainder of the



NORTH PALISADE GLACIER, NORTH PALISADE ON SKYLINE AT RIGHT CENTER

Photo by W. L. Huber



HUGE ROCKS PERCHED ON THE ICE OF NORTH PALISADE GLACIER

Photo by W. L. Huber

party made an early start for the glacier at the head of the creek.

The ascent to the foot of the glacier, more than two thousand feet, was over ledges of bare granite and loose rock-slides with several branches of the stream to cross. This upper basin of Big Pine Creek is one of the wildest in the Sierra. It is all over 10,000 feet in elevation and is near or above timber line. The ascent through it is the more interesting because of the ever-changing views of the precipitous eastern faces of the giant peaks at its head—Mt. Sill, the North Palisade, Mt. Winchell and Agassiz Needle.

At the lower end of a tongue of ice which reached far below the remainder of the glacier, we stopped to study a route to the main glacier above. The scramble over the rock ledges to the left proved much easier than it appeared from a distant view.

This brought us to the foot of the terminal moraine of the main glacier. Here one first gains an idea of the immense power of the glacier, which has slowly piled up a mountain of debris of all sizes, from coarse sand to boulders weighing many tons. On the lower face these particles are all practically at the angle of repose. This feature lends some excitement to the next bit of climbing, particularly when one finds the smaller particles, loosened by his own movements, beginning to slide out from under some boulder of several tons' weight directly above.

At the top of the moraine one suddenly gains a wonderful view of the ice field of the glacier extending from under foot to the mountain wall opposite. This glacier is the largest in the Sierra. It has a length of about one mile and a width of approximately a mile and a half. Directly at its head is the face of the North Palisade, a magnificent, almost vertical cliff, 1,500 feet in height. The summit of the peak (14,254 feet) is probably inaccessible from this side.

The glacier itself presents many features common to glaciers —perched boulders, crevasses, streamlets, and bergschrund. However, as active glaciers are not numerous in California, many of these features must continue to attract attention; and as this wonderland at the head of Big Pine Creek becomes better known it will have many admiring visitors.

THE CHOICE OF A CAMP*

By John Knox McLean

Let it be in the deep and solemn woods, a place of great trees, where the fir grows, and the sugar pine, queen of the forest; the yellow pine, prince consort to the queen, and noble cedars. Let it be among the mountains. If it be where some great ice-dome dominates the lesser peaks, so much the better. Not to stay in sight of the great monarch always, but where on occasion can be caught, all on the sudden, the face of him; and where he is seen in partial disclosure rather than in full. Let there be a river; not too large, but of full banks, clear, cold and impetuous; a river that would drown you, and cheerfully would, if it got the chance; there must be some spice of danger, else no true sense of solitude. Let this river be fringed with azaleas; outside of these, the great-leaved shield-saxifrage and ferns in shady spots. Before your abiding place let sun and shadow mingle in equal parts. Be near a spring of water. Let the camp be somewhat environed with shrubberies; vine-maple, dogwood, hazel bush,—their brighter green in most grateful contrast with the deeper tones.

Do not go utterly alone; one or two with you, who can without embarrassment sometimes be silent; long silent if occasion may require, but who can talk, too, when the mood is on. A good Indian serves well on some accounts. He understands the art of silence and can practice it without burden to his feelings. He can give you points in wood lore, and introduce you to some fine features of the solitude other guides might miss; besides, he is himself a son of the solitude and fits in well with the surroundings. If not an Indian, then a poet, if you know a sane one. There was such an one once,[1] who by the sunshine of his presence illuminated the atmosphere of this Club; and whose presence made the sunshine brighter everywhere. What a comrade he was! How with him one could spend whole days in silence unreserved, without embarrassment; and again beside the campfire talk through long evenings or for half the night sometimes over the smouldering ashes. How he loved the forest solitude! What varied culture he had garnered from it! How he could open its inner meanings to neophytes like some of us who went with him, page by page, chapter by chapter, scarcely with words at all, but by his own deep gladness and visible comprehension of it. But he is gone, and all the forests are poorer for it. Yet one should not say that either. It is not wholly true. Mountain and wood mourn him, yet his invisible presence abides in them everywhere. It can be felt in places where in bodily presence he never went. Whoever was privileged to wilderness-comradeship with Professor Sill will keep that comradeship unbroken and living so long as there are forests to visit, and he is permitted to visit them.

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*From an unpublished essay entitled "Multitude and Solitude." One of these extracts, together with others from unpublished writings of the late Dr. McLean. appeared in a biography by John Wright Buckham.

[1] Edward Roland Sill.

Your material surroundings bent to your mind, settle down for six weeks' stay at least; not a day less will suffice for much. Stay as much longer as you can. Abide in this retreat meekly. Do not set up to be the superior intelligence there, which you are not; be content to have footing as the inferior, which you will very soon find you are. Go not to lord it over your little brethren of the wood, Nature's other children, but to be their guest; not even to learn about them, but to learn from them. Draw closely to these gentle neighbors, obeying, with reference to them, St. Paul's injunction to esteem others better than yourself. For they are better; every one of them, and their name is legion; is, up to the measure of his calling and in his way, fulfilling God's will more perfectly than you.

And if you are to gain anything in this place or to gain anything in Nature's precincts anywhere, you must provide yourself with open mind, "alert to observe, but above all things else ready to receive whatever of truth, power or spirit, Nature has to impart." Nature's meanings are not to be strained after, only yielded to; not grasped, only to be received by instillation.

* * * * * * * *

Nature well knows the hiding of her strength. She stands without discomposure. Full willing is she the multitude should do its utmost upon her nurslings. For it is her multitude. It is she who implants the gregarious instinct. She did it knowingly, she who opens the individual faculties to receive the mighty impress of all this. She superintends the processes, and lends a hand, and is not abashed. She is aware of other resources. In the great contest of Hush against Rush, Nature stands serenely confident of her ground. You will recall that the opening definition made the Solitude identical with Nature, leaving out only man. And now, what is left after you have subtracted man from Nature, is much. All of the earth, and sea, and sky, and most of what in them is. The Solitude doesn't mean a graveyard. It means all the life there is, except just human life; and there is oceans of it. The resources for nature-culture are as inexhaustible as those for humanity culture, and perhaps more effective. It is Nature that puts up both cultures, out of the two to make one. In doing it she combines them, I think, somewhat as she does in combining oxygen with nitrogen to make air; the nature element here is the less in volume, maybe, but it is more in weight, and greatly the more efficient.

And then, Nature begins her work early. Her day began long enough before that of humanity. She had us to herself, as you know, in the long ages of general globe development. And after the race arrived Nature long kept us individually segregated. You will remember, too, that when we did begin to mingle, it was not exactly to swap wisdom and exchange developmental tips. About all that passed between primeval men appears to have been knocks. Broken heads formed the regular medium of exchange. Humanity, in those days, was engaged in creating the raw materials for experience. There was as yet no merchantable experience to be had. The Pactolian river was carrying only mud—mud and blood—rather than charity and clarity. It was later that bibles came in; very lately that printing presses arose and humanity organized its boards of trade. Now in those long intervals Nature took occasion to weave into our nature many ineradicable strains. She set her sign manual deep.

Even as yet she has us in our opening hours. Wholly at first, partially until, and even after, we are grown. There is nothing to which the youngling clings as to a flower or some bright shell; there are tremulous memories in them of his last thousand years. Nature, like heaven, lies about us in our childhood,—and so do the intimations and interpretations of Nature.

"We are what suns and winds and waters make us;
The mountains are our sponsors, and the rills
Fashion and win their nursling with their smiles."

You will remember Longfellow's quatrain upon Agassiz:

"And Nature, the old nurse, took
  The child upon her knee;
Saying, Here is a story book,
  The father hath written for thee."

And Wordsworth's "Boy:"

"There was a Boy; ye knew him well, ye cliffs
  And islands of Winander! Many a time
At evening would he stand alone
Beneath the trees, or by the glimmering lake;
And then, with fingers interwoven, both hands
Pressed closely palm to palm and to his mouth
Uplifted, he as through an instrument,
Blew mimic hootings to the silent owls,
That they might answer him. And they would shout
Across the watery vale, and shout again
Responsive to his calls.
. . . And when it chanced
That pauses of deep silence mocked his skill,
Then, sometimes, in that silence, while he hung
Listening, a gentle shock of mild surprise
Has carried far into his heart the voice
Of mountain torrents;—or the visible scene
Would enter unawares into his mind,
With all its solemn imagery, its rocks,
Its woods and that uncertain heaven, received
Into the bosom of the steady lake."

Oh, the blessedness of having been a boy in the country! What gladness in the experience, what riches in the retrospect. I am glad the practice of being born in the country has not utterly gone out. Dame Nature loves her country boy. Her city boy, too, I suppose; only he was born away from home, and must be coaxed back, first, to its quietness and peace.

COLLECTING INSECTS OF THE HIGH MOUNTAINS

By Vernon L. Kellogg

The animal life of the high mountains, in summer, consists chiefly of insects—and Sierra Club members. There are a few other kinds of mammals, a few kinds of fishes and reptiles, more kinds of birds, and many kinds of insects. In the high mountains, as in the lowland, it is the Age, now, of Man and Insects. There is only one species of man, but he dominates the world by his wit. There are nearly 400,000 species of insects, and they do their dominating by virtue of numbers. I do not know how many kinds of insects there are resident in the Sierra Nevada, but the number runs into the thousands. Of them all, the most conspicuous, and in many ways the most interesting, are the butterflies. I have tried to tell about a few of them in an earlier Bulletin (Vol. IX, No. 2, June, 1913). Other fairly conspicuous and attractive ones are the moth-like caddis flies that flutter in the foliage on the bank of streams, the great, brown, wood-boring beetles, that are seen occasionally in the forest belt, the curious soft-bodied white ants that swarm out occasionally when a fallen log is chopped into, the granite-colored katydids that look like their green cousins of the lowlands except for the adaptive change in color, the busy Syrphid flies and bees of the lush gardens of wild flowers in glacial meadows, and the ever-active, industrious ants working out their marvelous lives under the feet of all the other mountain creatures. Some insects, too, there are, that are fairly conspicuous but not attractive. The mosquitoes are the best known and most insistently noticeable of these.

The more one looks the more one sees. Some trampers will go through the mountains for a whole summer and come out without having noticed any other kinds of insects than mosquitoes and a few large butterflies, like the black and yellow swallow-tails of the lower meadows. But anyone who will can scrape acquaintance with many kinds of insects, some of them beautiful, and all of them, if observed with any attention, of interesting habits or manner. Some of these observers will wish to collect and preserve some of the kinds of insects they see. It is for Sierra Club members of this latter class that I write these few notes of suggestion.

For collecting butterflies, one should have a gauze net with light folding handle. Or no handle at all need be brought from home, improvised ones being cut and fitted after reaching the mountains. A butterfly may be killed by putting on it a few drops of chloroform or ether, or by a firm and slightly protracted pinching of the two sides of the thorax (the part of the body from which the wings arise). This pinching should be strong but not severe enough to crush the body. It may advisedly be repeated two or three times before assuming that the butterfly is killed. The butterflies should be put away with wings folded, in envelopes or bits of fairly stiff paper (writing paper is good), folded to form a triangular holder.

For all other insects the best method of killing is by the use of a "cyanide bottle," prepared by dropping two or three lumps, each as large as a finger end, of cyanide of potassium into the bottom of a wide-mouthed bottle (of 4 to 8 ounces capacity). Over the cyanide should be put enough moistened plaster of Paris to completely cover it. When the plaster of Paris sets the cyanide will be held firmly in the bottom of the bottle. Keep the bottle firmly corked and it will always be filled with a gas deadly to any insects that may be dropped into it. Keep a piece of blotting paper, occasionally renewed, over the plaster of Paris in the bottom of the bottle. Keep also a loosely crushed piece of tissue paper in the bottle, both to soak up moisture from the insect bodies and to keep the insects from knocking about too violently as the bottle is carried. Drop any collected flies, ants, bees, beetles, bugs, and even small moths and butterflies, into this bottle as you tramp and wander during the day. At night take out the dead insects and either pack them away between thin layers of cotton wadding in a small wooden or tin box, or "pin them up" by thrusting an insect pin vertically through the thorax until only one-fourth of it projects above the back of the insect. Keep these pinned insects in a small wooden box with its bottom covered with pressed cork or peat or the pith of the flowering stalk of the Century plant. The pin should be thrust deeply and firmly into the cork or pith so that jarring cannot loosen them.

Soft-bodied insects, especially larvae (caterpillars, grubs, etc.), may be kept in small bottles of alcohol of about 85 per cent strength. Common commercial alcohol is about 95 per cent strength; add about 1-10 part of water to it. However, alcohol takes out the color, and injures the hairy covering of insects to such a degree that only such fleshy and soft-bodied kinds should be preserved in it as would become too much deformed by drying. The butterflies in the papers and the insects on the pins are preserved, of course, simply by drying.

Careful records should be made of the time and place of capture of all insects taken. Indeed there is hardly any excuse for collecting insects without such records, which give the entomologist a basis for determining such important matters as distribution, seasonal appearance, etc., of the insects collected. Field notes on habits of the insects observed are especially valuable. All too little is known of the life of the insects of the high mountains. Of such familiar mountain regions as the California Sierra Nevada, we are, indeed, pretty well acquainted with the insect fauna. But this only means that we know that such and such insects are found there and such others are not. It does not at all mean that we know why and how they live there.

Finally, I may say that I shall be glad to add to these few and general suggestions more specific ones at the personal request of any Sierra Club members. And I shall be glad to learn, after the summer's collecting season is finished, of any interesting captures.

Stanford University.

SKI RUNNING: AN IMPRESSION

By Hazel King

"Out of your cage,
Come out of your cage,
And take your soul on a pilgrimage!"

Come away from the rush and stress of life and follow on skis the flight of a mountain blue bird.* To find those birds in the high mountains in winter is a rare privilege and to be able to observe them from skis is still another. So let the Pullman porter set you free at Truckee when he lifts his trap door, and glide away over the snowy slopes to the silent haunts of that wandering bird.

Already your soul has swung far out on the keen driving air to a snow-tipped pine tree; but your unmanageable and awkward body, (it is all of that with strips of boards, half again as long as you are, attached to your feet), must struggle and push to make even a little headway up the hill.

It seems at the first careful lifting of one's feet that one needs the strength of a Sandow. There can be no doubt; the use of skis demands muscular effort. But this winter sport takes not alone physical ability, but mental agility as well,—the art of looking ahead, determining one's course and swaying one's body accordingly. In the ascent you must place your weight forward. In the descent it is just the reverse. The extent of this forward and backward movement varies with the steepness of the slopes encountered. The steeper the declivity the more the body, in ascending, swings forward, whether you are traveling straight ahead, or are taking a zig-zag course. Again, the opposite movement takes place in the descent, while in any case the weight is always thrown from the knees.

You, of course, would suppose that the responsibility of keeping your equilibrium rests with your feet and ankles, they being in closer touch with the skis, but it is not so. They act merely in a steering capacity and as brakes, and must always move in connection with the rest of your quick and lithe body which swings like a pendulum.

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* It will be of interest to ornithologists to learn that mountain bluebirds (*Sialia currucoides*) were found wintering on the vast snowfields at Truckee in February and March, 1914. Curiously enough at that high altitude, in the dead of winter, small butterflies and other insects, especially tree-hoppers (*Membracidæ*), were found abundant during the sunny hours of the day wherever patches of chaparral were free of snow and exposed to the direct rays of the sun. The heating power of the sun in such places, aided by reflection from the snowfields, would appear incredible to one who has not experienced it. For Mountain Bluebird, see Sierra Club Bulletin, Vol. VIII. No. 4.—*Editor*

In short, it is rhythm; it is the same intangible pulsing, the same beat that comes into the mind and dominates the body in skating and in dancing; it is the same undercurrent of mental movement with which all activity, physical or otherwise, is filled, and it is this harmonious blending of the body with the mind that enables you to travel easily and gracefully over the glistening snow.

But even with a sense of rhythm to your credit, you must not expect that it alone will instantaneously swing you up to that happy playground to which your soul rushed out, in the early morning. You must learn to be patient in your slips, and slides, and falls; to even anticipate the latter, so that you may tumble jauntily into the snow, thus causing you no bruises or pain.

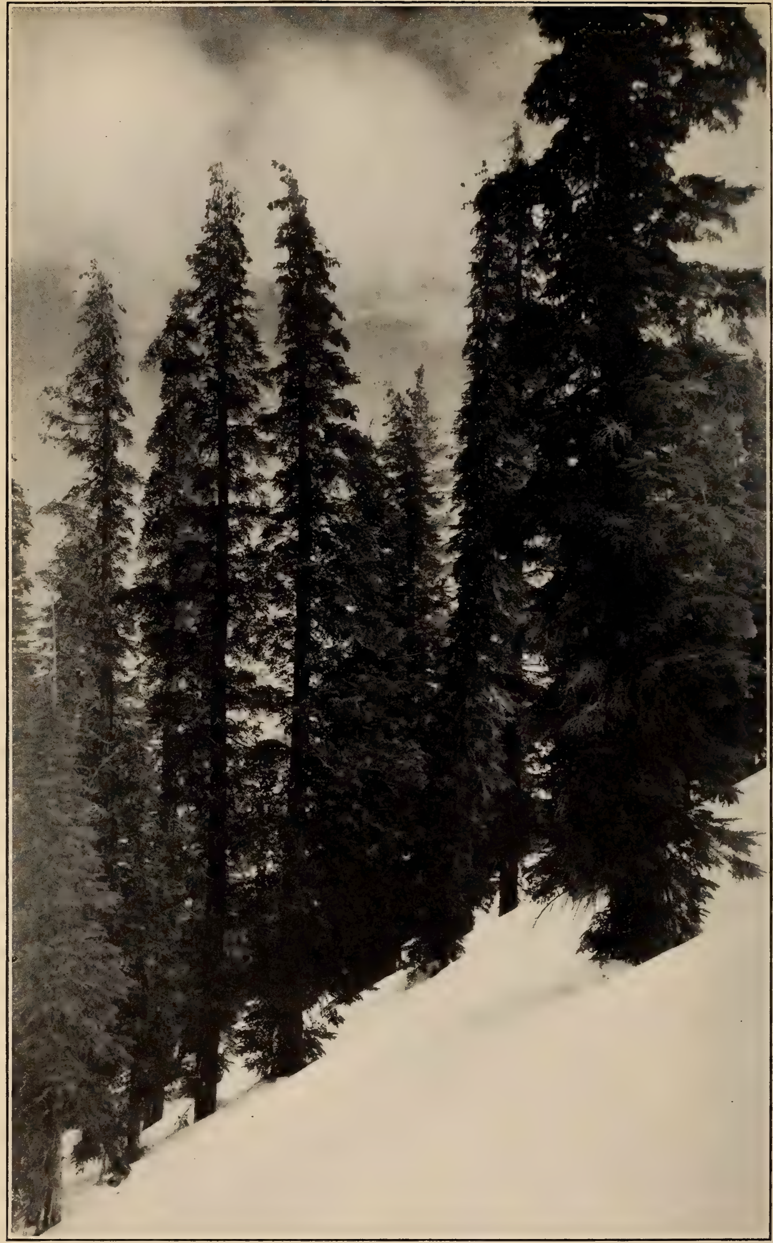
It is a cosy place for half a minute, (until you begin to thaw); that hole you have dug for yourself where the snow snuggles into every corner of your body. But such a snarl to disentangle, skis, stick and head all curled up in a knot, and when you are freed, erect and ready to start again, how humiliating to leave behind, for others to come upon, that hole for a signpost, "Here I fell!"

It takes quite a few pilgrimages to the skiing grounds to pass beyond that period of disfiguring the snow, and to glide with all ease and abandon down any sort of slope. To take bumps and dodge trees you must approach them without fear; with the realization that they are to be considered but with all the self-assurance and determination that you are master, and that they can have no terrors for you.

Here is where a knowledge of mountaineering is of advantage, for an understanding of heights and distances. A cautious alertness for precipices and crevasses, also, is most essential before attempting and hazarding too much. Again, another quality that is necessary to a ski-runner is endurance, especially in the case of journeying from place to place; for to travel steadily and easily, as the Indians do, is to win your goal with the least possible fatigue and trepidation.

A TYPICAL WINTER DAY AT TALLAC
Photo by J. E. Church, Jr.

SKI RUNNING IN THE SIERRA
Photo by W. F. Badè



MOUNTAIN HEMLOCKS IN WINTER—A SKI RUNNER'S PARADISE ON RUBICON PEAK

Photo by J. E. Church, Jr.

Even after all is said, you will never learn to be quick and facile in strapping on your skis yourself, and skimming joyously over the freshly packed snow, unless you have a real love of adventure in your heart; unless you want to penetrate the winter's silences and mingle with and vanish away into them, with the hushed hope of stealthily tracking the mountain blue bird, or maybe coming upon a rocky fortress, where you can plant your skis endwise on the snowy threshold, climb upon its battlements and there stretch out in the warm sunshine, listening for the faintest stir of insect or wind.

If you are intent upon all this; if you are eager sometimes to wander through an enchanted forest over which a fairy's fog wand has cast a spell, and are impatient to be caught up yourself into this soft and caressing web of mystery, then I say to you,

> "Scribe and stay-at-home,
> Saint and sage,
> Out of your cage,
> Come out of your cage!"

Put on your skis and go up to the mountain top. There pause; gather yourself together in a crouching position, just as a bird does before it leaps into the air; then straighten out, with equal scorn of your moorings, with life and freedom tingling from your toes to the sparkle in your eyes, and you, too, will fly over that white world, alighting gradually and uprightly (we hope).

In any case, you have had the exhilaration of that wonderfully quick downward movement, and after you have gathered yourself together again to reascend the slope, you have the pleasure in the climb, of pausing to watch the changing clouds, of speculating as to "what is beyond that ridge," of noticing the whispering trees, until you find yourself once more at the top, ready and impatient to try again your ski wings.

What a sad moment it is when the time comes to lay aside those skis in the baggage car, and to steam down soberly and leisurely from the heights to resume the routine of every-day life. But it is only the train that moves slowly and cautiously. Your soul, caged again, beats upon the windows of the Pullman car for fresh air and freedom, and still dreams of that happy pilgrimage into the vast white stillness.

LAKE TAHOE IN WINTER*

By J. E. Church, Jr.

Lake Tahoe is an ideal winter resort for the red-blooded; for the viking and the near viking; for the man and the woman, who for the very exhilaration of it, seek the bracing air and the snow-clad forests. Lake Tahoe is as charming in winter as in summer, and far grander. There is the same water—in the morning placid, in the afternoon foam-flecked, on days of storm tempestuous. The lake never freezes; not even a film of ice fringes its edge. Sunny skies and warm noons and the lake's own restlessness prevent. Emerald Bay alone is sometimes closed with ice, but more often it is as open as the outer lake. Even the pebbles glisten on the beach as far back as the wash of the waves extends.

But beyond the reach of the waves a deep mantle of white clads the forests and caps the distant peaks. The refuse of the forests, the dusty roads, and the inequalities of the ground are all buried deep. A smooth, gently undulating surface of dazzling white has taken their place.

The forest trees are laden with snow. Each frond bears its pyramid and each needle its plume of white. The fresh green of the foliage and the ruddy brown of the bark are accentuated rather than subdued by their white setting. But as the eye travels the long vista of ascending and retreating forest, the green and the brown of the near by trees fade gradually away until the forest becomes a fluffy mantle of white upon the distant mountainside. Above and beyond the forest's utmost reaches rise the mountain crags and peaks, every angle rounded into gentle contours beneath its burden of snow.

Along the margin of the lake appear the habitations and works of man deeply buried and snow-hooded until they recall the scenes in Whittier's "Snow-Bound."

The lover of the lake and its bird life will miss the gulls but will find compensation in the presence of the wild fowl—the ducks and the geese—that have returned to their winter

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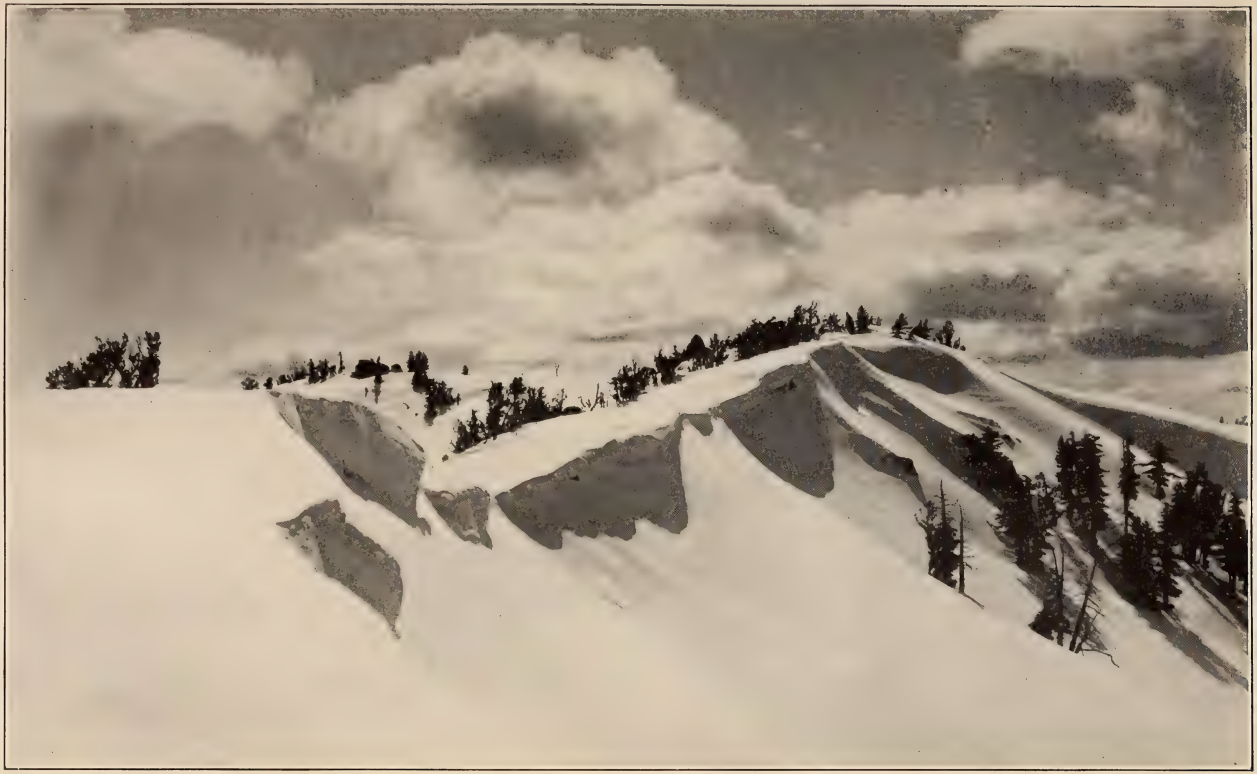
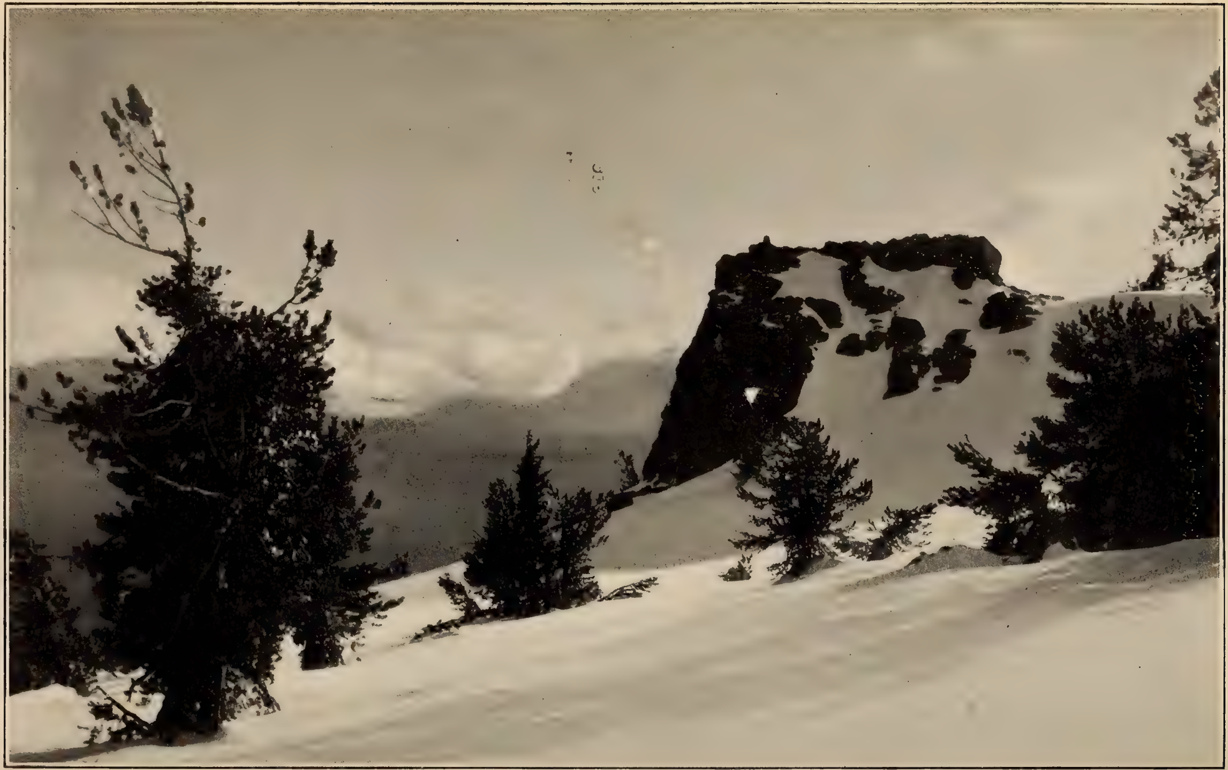
* By the courtesy of the *Sunset Magazine*.



SNOW CORNICE ABOVE BROCKWAY
Photo by J. E. Church, Jr.



CASTELLATED ROCK ON RIM OF LAKE TAHOE ABOVE BROCKWAY — VIEW UPON THE LAKE FROM TWO THOUSAND FEET ABOVE ITS SURFACE

Photo by J. E. Church, Jr.

haunts. Lake Tahoe is pre-eminently adapted as a winter resort for three prime reasons: First, it is easily accessible; second, no place in the Sierra Nevada, not even Yosemite excepted, offers so many attractions; third, it is the natural and easy gateway in winter to the remote fastnesses of the northern Sierra.

The second and the third points claim immediate attention; the first must wait. Among the attractions pre-eminently associated with Lake Tahoe in winter are boating, cruising, snowshoeing, exploring, hunting, mountain climbing, photography, and camping for those whose souls are of sterner stuff. Fishing during the winter months is prohibited by law.

If one asks where to go, a bewildering group of trips and pleasures appears. But there come forth speedily from out the number a few of unsurpassed allurement. These are a ski trip from Tallac to Fallen Leaf Lake to see the breakers and the spray driven by a rising gale against the rock-bound shore, and, when the lake has grown quieter, a boat ride to Fallen Leaf Lodge beneath the frowning parapets of Mt. Tallac. Next a ski trip up the glen to the buried hostelry at Glen Alpine, where one enters by way of a dormer window but is received to a cheerful fire and with royal hospitality.

Under the skillful guidance of the keeper, a memorable experience may be made of a day's climb up the southern face of Mt. Tallac for an unrivalled panoramic view from its summit, and a speedy but safe glissade back to the hostelry far, far below. And if the legs be not too stiff from the glissade, a climb over the southern wall of the Glen to Desolation Valley and Pyramid Peak, whence can be seen the long gorge of the Rubicon. The thousand lakes that dot this region present no barrier to one's progress, for they are frozen over and lie buried deep beneath the snow that falls here in an abundance hardly exceeded elsewhere in the Tahoe region.

A close rival of these is the climb from Rubicon Park up the stately range in its rear to visit the mountain hemlock, the graceful queen of the high mountains, and to gaze across the chasm at the twin crags beyond.

And peer of them all, though requiring but little exertion, is a trip to Brockway to enjoy the unrivalled view of the "Land's

End" of the lake and catch the colors of the pansies that are still in bloom in a niche of the old sea wall. If one possess the artist's mood, he will add thereto a boat ride round State Line Point in the lazy swell of the evening sea beneath the silent pine-clad cliffs, while the moon, as beautiful as any summer moon, rides overhead. Only the carpet of snow and the film of ice that gathers from the spray upon the boat keeps one alive to the reality that the season is winter.

Finally, a rowing trip along the western shore of the lake with stops at pleasure en route. One can have weather to suit his taste, for the waters on this shore are safe in storm, and the barometer and the sky will give full warning long before the weather attains the danger point. The man who loves the breath of the storm and the glow of excitement will loose his boat from Tallac when the clouds swing down the cañon and speed forth borne, as it were, on the wings of the waves toward the distant foot of the lake—past the black-water wall where the waves of Emerald Bay sweep into Tahoe, through the frothy waters where the wind shifts and whips round Rubicon Point, over the white caps of Meek's Bay until by skillful maneuvering the jutting cape is weathered and quieter water is found in McKinney Bay. Full time there is, with the wind astern, to reach the river's mouth at Tahoe City, but the voyager who loves the woodland will tarry for a night in the dense fir forest of Blackwood, while his boat rides safely moored to the limb of a prostrate tree.

Regarding the eastern side of the lake, the bold shore and jutting headlands, the fewness of the landing places, and the sweep of the waves make cruising in these waters a matter of supreme skill and farsightedness. Let the viking learn with broad-beamed boat the mastery of the western shore before he turns his boat's prow to the east. For the man of milder tastes the motorboat will suffice or the mail steamer, which plies the waters of Lake Tahoe twice a week.

In tobogganing, the hills and open meadows at Tahoe City and at Glenbrook will furnish royal sport for the devotee. Skating and ice-yachting must be sought in regions where the snow is less deep and the cold more intense.

Skiing is the chief method of locomotion in winter at the lake, and the novice soon becomes expert in the milder forms of the sport. Ski trails thread the forests at Tahoe City and radiate from every resort. The open inns at Tahoe City and Glenbrook, and The Grove near Tallac and the resorts on Fallen Leaf Lake insure the traveler's comfort, while the hospitality of the caretakers at all of the resorts is proverbial.

The question of when and how to go is naturally a leading one. During the months of November to April, two sledging services are furnished, each thrice a week—one from Carson City to Glenbrook, the other from Truckee to Tahoe City. The mail boat connects with the incoming sledges and train on Tuesday and Saturday. The route from Carson City, which crosses the heights of the Carson Range, affords a superb view of the lake at sunset. The route from Truckee traverses the wooded cañon of the Truckee River, when scenically at its best.

The journey from Truckee to the lake can also be made on skis in one short day. It is an exhilarating trip, if one travels light. If one desires to tarry en route, he may carry his blankets and food on his back or haul them on a toboggan, and spend the night at the half-way station, known as Uncle Billy's.

The best time to visit the lake is after the heaviest of the winter snows have fallen. The period of steady and heavy precipitation occurs in January. After this month is past, there are long periods of settled weather broken only occasionally by storms, which add to rather than detract from one's pleasure.

The special equipment requisite for winter trips to Tahoe is slight. The list includes goggles (preferably amber), German socks and rubbers, woolen shirt, sweater, short heavy coat, and mittens. For mountain climbing a pair of Canadian snowshoes should be added to the equipment; for traveling on the level, a pair of ski can be rented at Truckee or the lake. If one desires to camp instead of stopping at the resorts around the lake, a tent and waterproof sleeping-bag should be procured.

The cost of transportation in winter is scarcely more than in summer. The sledge trip from either Truckee or Carson City to the lake is $2.50, an amount only $1.00 in excess of the regular fare by rail. Board will cost no more than in summer.

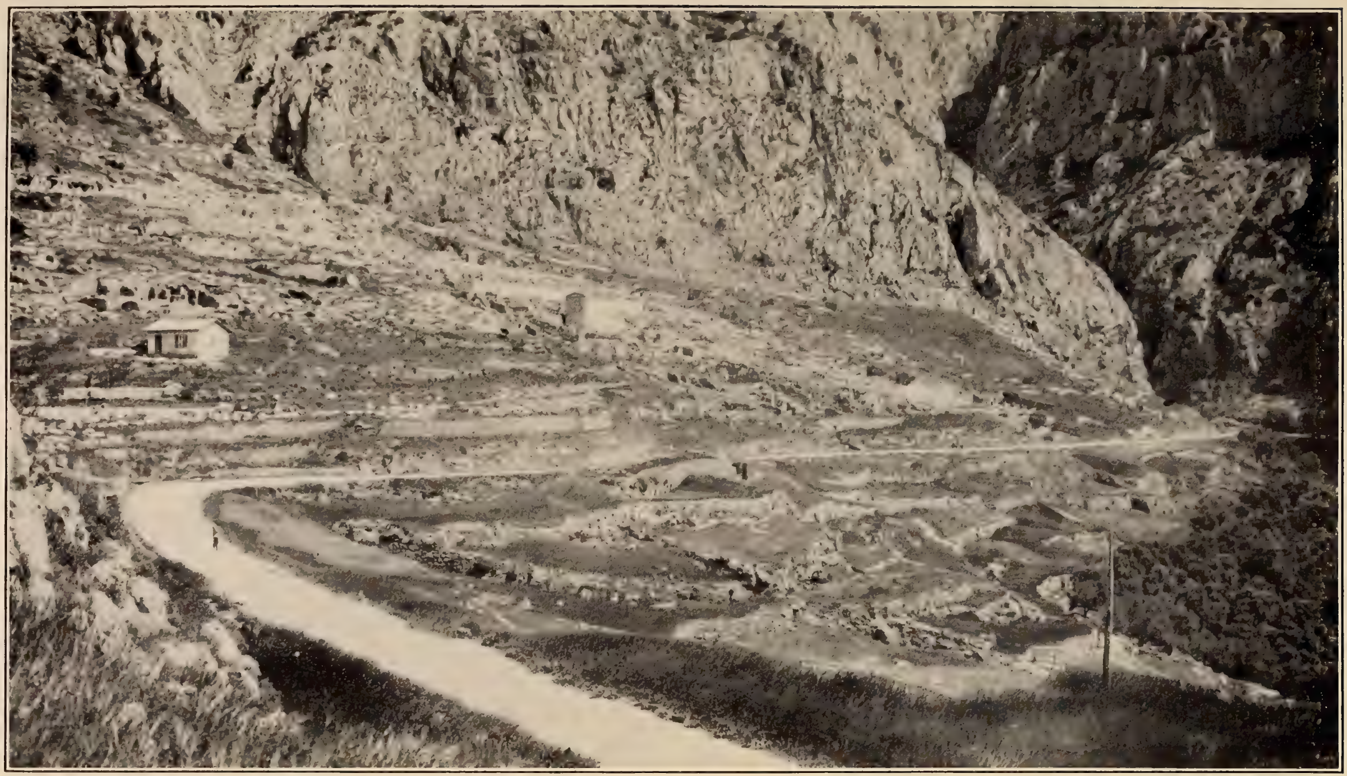
MT. PARNASSUS

By Aristides E. Phoutrides

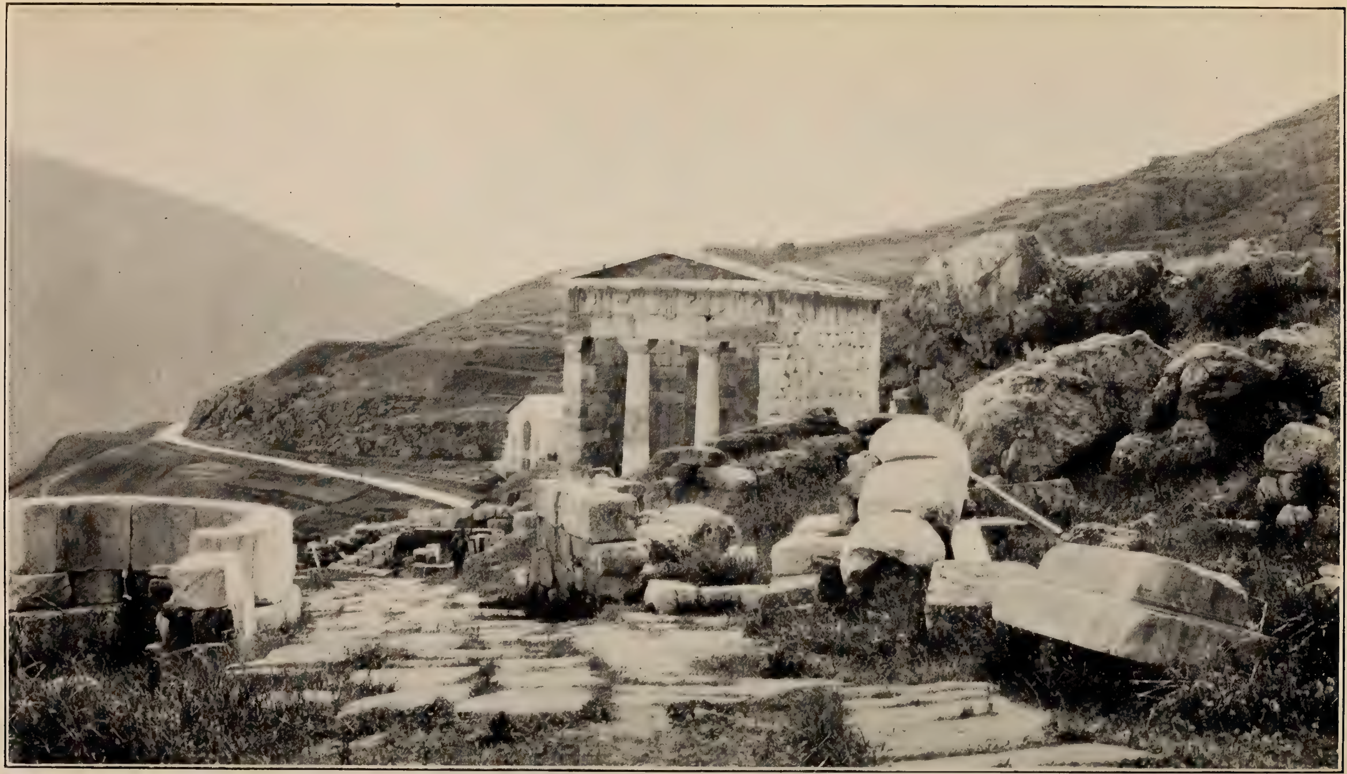
To one who has seen the wonderful revel of light and color that takes place day after day over mountain and sea in the central region of Greece, and heard the murmurs of the waves mingling in everlasting melodies with the whispers of the silvery olive groves, it cannot seem strange that the ancient Greeks should have thought of light and music as having the shining Sun-god for their common source, or that they should have considered the mountain which commands the whole of the Corinthian Gulf and overlooks most of central and southern Greece as his proper mansion.

As we traveled along the northern coast of the Peloponnesus one day last April and beheld Mt. Parnassus, crowned with glittering snow, towering majestically across the blue waters of the Corinthian Gulf, such thoughts must have inevitably suggested themselves to us, even if we had not been acquainted with the history of the region. And a week later, as we saw it again from the little steamer that took us from Piraeus through the Corinthian Canal to the little harbor of Itea, we were once more imbued with the spirit of light and music and poetry.

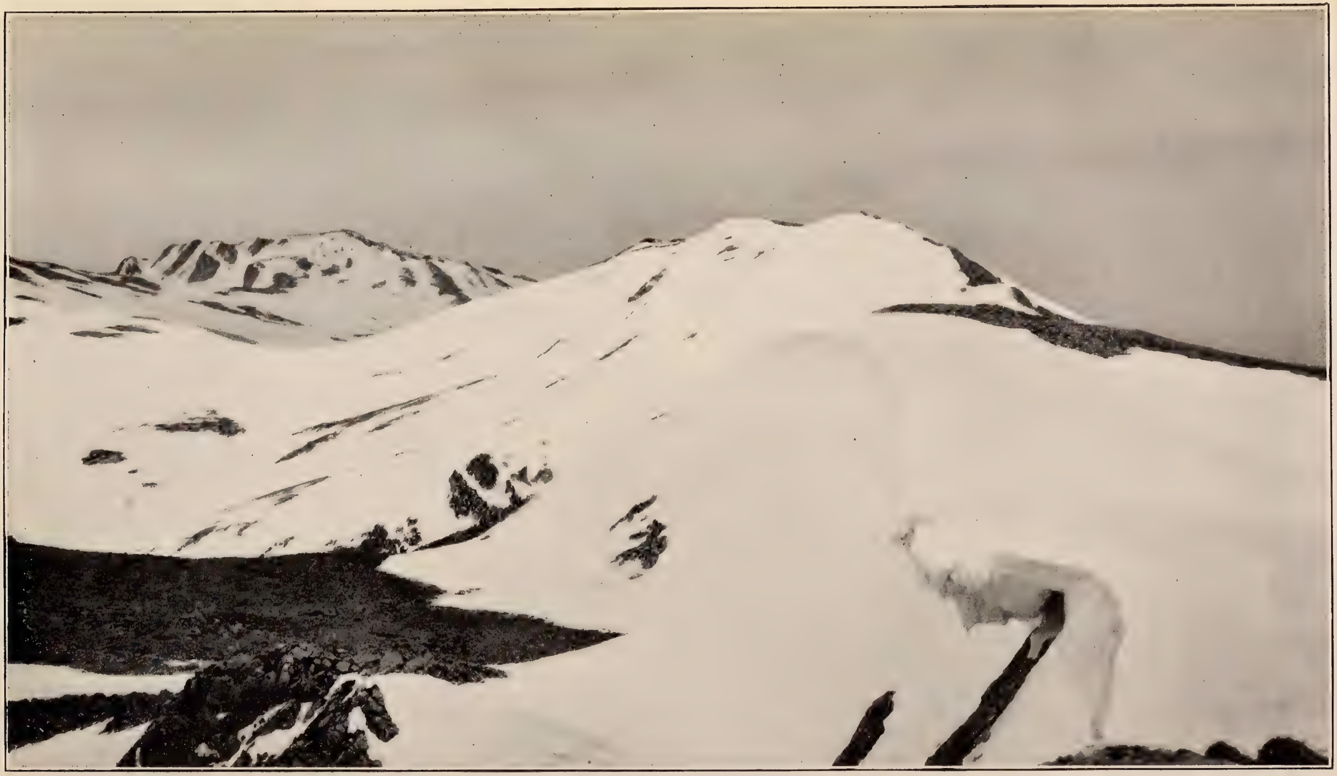
To climb Mt. Parnassus was part of a plan that we had conceived in the summer of 1912 in the heart of the High Sierra of California. In this month of April, 1914, my companion, Francis P. Farquhar, coming from America, and I from Egypt, met at Patras, almost within sight of the peaks of Parnassus. It was very early in the season for mountaineering in Greece, but we who had been on the peaks of the Sierra, were not so much alarmed at the prospect of snow as the good people of the neighborhood seemed to think we should be. Accordingly it was with light hearts that we disembarked at Itea and set out on foot, in the soft light of late afternoon, for Delphi. We walked through the fertile plain of Crissa, up the first foothills of Parnas-



DELPHI, THE SACRED DISTRICT—FOUNTAIN OF CASTALIA IN THE GORGE AT THE RIGHT
Photo by Francis P. Farquhar

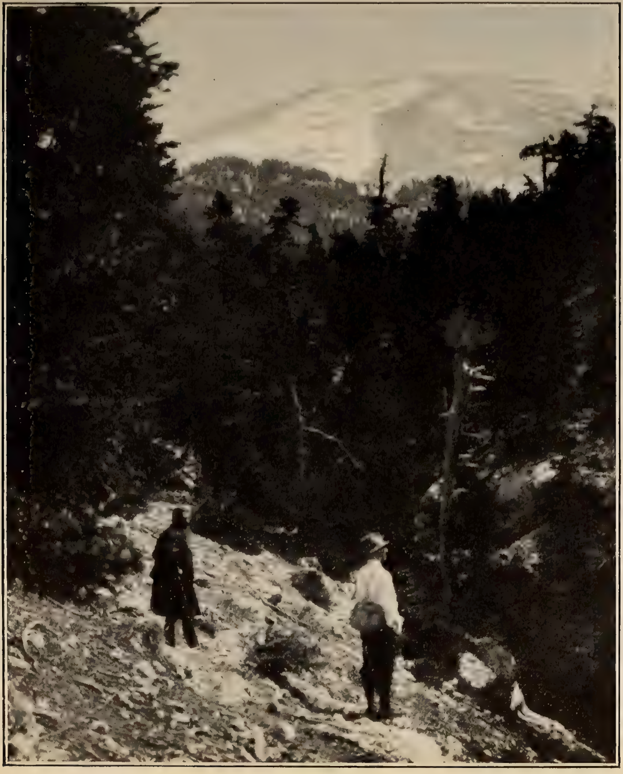


DELPHI, THE TREASURY OF THE ATHENIANS
Photo by Francis P. Farquhar



THE SUMMIT OF MT. PARNASSUS, 8,070 FEET—HIGHEST PEAK AT THE LEFT.

Photo by Francis P. Farquhar



Nearing the Summit

Demos, the Guide

CLIMBING MT. PARNASSUS, APRIL 24, 1914
Photos by Francis P. Farquhar

sus, and past the little village of Chryso to the village of Kastri. The latter now bears the ancient name of Delphi.

We stopped at the little house of Paraskevas, which the proprietor calls the "Hotel des Etrangers" and which commands the best view of the gorge of the Phaedriadae. From the modest balcony of the house we looked with wonder at the magnificence which was spread before our eyes. Directly below our feet lay the narrow gorge through which the waters of the Pleistos run whenever the storm breaks over the majestic cliffs of reddish rock rising on either side. The aspect here is wild and impressive. But the gorge gradually widens into the pleasant plain with its red-earthen fields, its green vineyards and silvery olive groves—the most glorious olive groves in Greece, with the exception perhaps of those covering the valley of Taygetus about ancient Sparta. Beyond shone the sapphire waves of the Gulf, carrying the glance across the waters to the Peloponnesian mountains of Panachaicon and Erymanthus. To the west the purple masses of Mt. Kiona and the ancient Korax loomed against the sky, brilliant with the expiring colors of the setting sun. Then indeed we saw and heard light and music in waves eternally streaming from Apollo's ancient shrine.

In the morning we went forth in the brilliant light of a Grecian day and walked to the site of the ancient Delphi, where were once the shrine and oracle of the Pythian Apollo. We wondered whether we would be graciously received by the god. In the old days a detachment of the army of Xerxes, coming to take possession of the sacred treasures. was overwhelmed by a terrific thunder-storm, that caused two crags to split off from Parnassus and roll down, crushing many and striking terror into the hearts of the survivors. Herodotus tells the tale in the eighth book.

For us, however, the sky shone brighter than ever and the whispers of the olive trees sounded propitious to our ears. Thus we turned to the mouth of the cleft whence the waters of the Fountain of Castalia gush forth, cold like the snow of the mountain tops, as welcome to the traveler today as they were to the pious pilgrims of old who flocked to the unfailing oracle for advice in time of stress. And presently we ourselves went in search of the oracle. Following the Sacred Way, we passed by the Treasury of the Athenians, now restored to a semblance of its former beauty, and came to the bare remains of the once great Temple of Apollo. From its innermost chamber, according to tradition, arose the vapors that inspired the Pythian priestess. Here we plucked blood-red poppies and paused to dream of the by-gone days. In the gymnasium we could see the youths of Delphi filling their bodies with harmonies of form; from the tiers of the theatre we beheld Apollo and Athena judging between the matricide Orestes and the avenging furies; and all about us we saw in their former splendor and beauty the master works of the ancient architects and sculptors. When the evening came, and the Sun-god sank once more in the west, we returned to our inn and lay down to sleep and dream over again the fair dreams of the day.

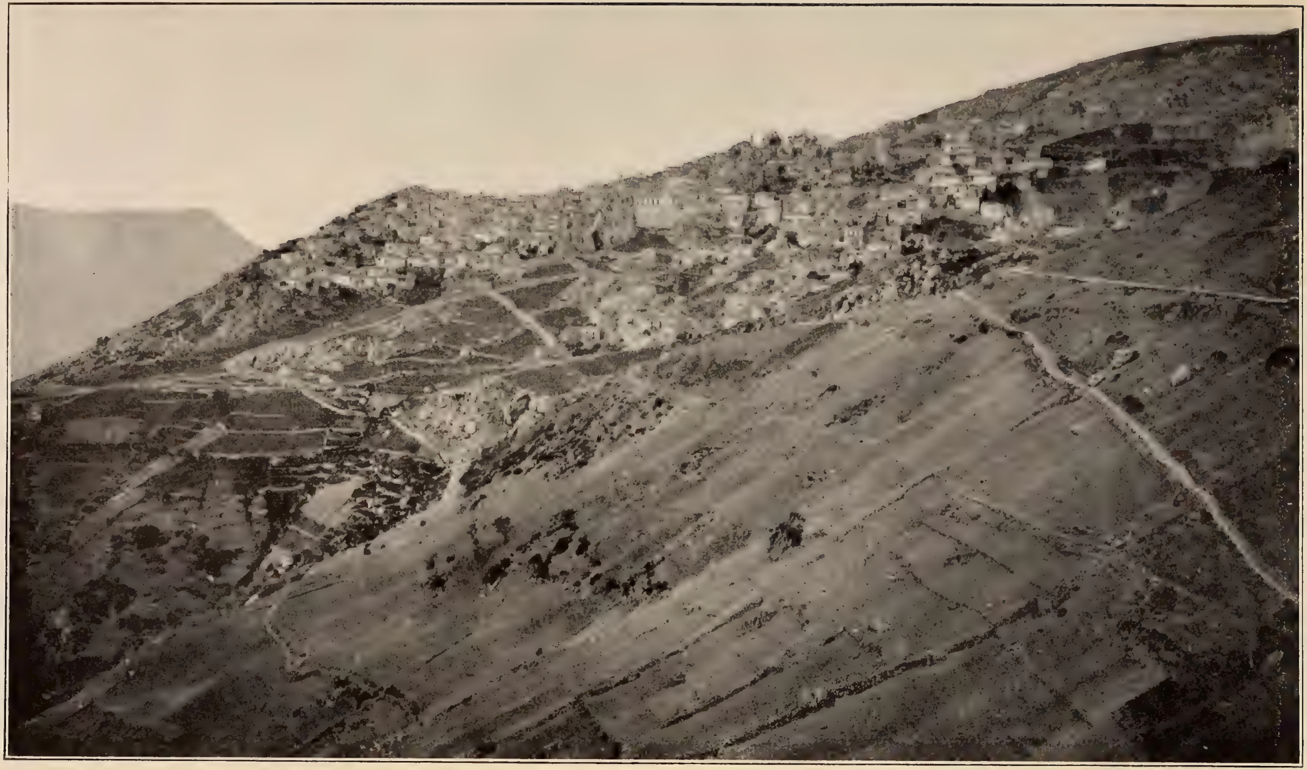
As soon as early dawn the "rosy-fingered" dispelled the blackness of the night, we rose, and with Demos, our venerable guide, started for the top of the mountain. Demos proved an interesting companion. In spite of his sixty years he could climb as fast as a mountain goat. Of such trivial things as reading and writing he, of course, knew nothing. But he knew many a mountain song and story. He told us of the dangers that hung over the people of the region in the old days when bandits flocked free over the mountain sides and how he himself once had a narrow escape from the hands of a great robber. "Many things mine eyes have seen," said he, "for then men were made of iron and were fed with the anger of the earth."

We climbed on and up, through pastures where shepherds were leading out their flocks of sheep and goats for the day's feeding, through sparse groves of evergreens and over shoulders of ragged rock, until at length we came out upon a great high plateau, covered with flowers: snow-white and purple iris, blue and white asters dancing among crimson poppies, daisies, white with yellow eyes, nodding to amber crocuses, and dandelions couched among vetches and lupines. After a slight descent into a mountain meadow, cultivated by the inhabitants of the village of Arachova, we reached the foot of a steep hill covered with mastich bushes and prickly oaks. It was a matter of some twenty minutes to climb this for a visit to the famous Korykian Grotto. The Grotto lies very near the top of the hill and could hardly be discovered by one unfamiliar with the place, for its entrance is small and hidden behind bushes. As we entered we found ourselves in a dark cavity, the floor of which seemed to sink beneath us. We struck matches and presently were able to make our way down into the innermost recesses. Above us the roof dripped from massive stalactites. It was in this cave that the Sun-god loved the beautiful nymph Korykia, and here the chosen nymph was worshiped in later generations with her companions and Pan, the shepherd god. In times of distress it was a refuge for the people of the vicinity. Hither the Phocians fled when their land was invaded by the Thessalians a few years before the coming of Xerxes. Here the Delphians hid their treasures when the Persian armies swept over the country. In the days of the Turkish oppression it was the hiding place of many Klephtes, men who preferred to live on the mountains whence they could swoop down upon the oppressors and wreak vengeance for wrongs. During the War of Independence it was the stronghold of one of the greatest chiefs of the war, the unfortunate Odysseus Androutsos; and under the reign of Otto, it afforded shelter to many a roving bandit. Now it is left in solitude, a shrine to the ancient divinities, exposed only to the gaze of the peaceful traveler.

We returned to the high-lying fields and presently reached the forest of fir that covers the slopes of the main mountain. We wondered whether it was in these ravines that Ulysses of old, when still a lad visiting the home of King Autolycus, had come out to chase the wild boar, whose sharp tusk was destined to play such a great role in his life. But we saw no boars in the windy hollows through which we passed and we had no spears to strike with. We simply climbed steadily up the forested buttresses of the mountain until we passed the timber line. At the neck of the summit ridge we struck snow and slowly toiled toward the peak until about noon we were on the snow-mantled top. We had done better than the old traveler Pausanias in the second century, A. D. He had only gone as far as the Korykian Grotto. "From this place," he says, "to the peaks of Parnassus is a long and hard climb even for a light man. And the peaks rise above the clouds and on them Bacchantes lead on their orgies with Dionysius and Apollo."

Wonderful things are not strange to Parnassus even today. The people of the surrounding districts, who call the mountain Liakoura—a transformation of an ancient word meaning "Range of Light"—have still many secrets to tell about it. Thus the people of Arachova told us of a wonderful well near the top, which is dry most of the time, but once in seven years is filled with water issuing from seven hidden springs. In ancient times, too, the people dwelling about Mt. Parnassus had a different name for it; they called it Ternessus, a word of unknown origin.

The general formation of the mountain is somewhat similar to that of Mt. Olympus. The summit ridge bends in a half-round curve running from east to west, forming a large amphitheatre facing north. Around this the five highest peaks of the mountain stand, mantled in snow for the greater part of the year. The highest summit, which reaches an altitude of 8,070 feet, or 2,459 meters, is at the southern end of a spur that runs from north to south joining the eastern end of the amphitheatre. We climbed the two westernmost peaks, which are nearly as high, and would have gone on had not the clouds that enveloped the rest of the summit rendered any further advance useless. The southeastern view was entirely hidden from our sight. Against that face of the mountain the wind had swept great clouds which rose and sank in their struggle to encompass the precipitous cliffs. The mountains of Euboea closed the view to the east; the lofty range of Korax rose to the west; to the south were dimly seen the Peloponnesian mountains of Cyllene, Aroania, Erymanthus and Panachaicon, bordering on the sapphire spaces of the Corinthian Gulf. A light blue haze wound round us: a mystic veil.



THE VILLAGE OF ARACHOVA ON THE SLOPES OF PARNASSUS
Photo by Francis Farquhar

PLATE CXIII.

MT. PARNASSUS FROM THE EASTERN SIDE

Photo by Francis P. Farquhar

which although it limited our range of vision, yet enveloped all that we saw with a transcending charm that merged all valleys and plains, mountains and seas, into a fascinating dreamland.

Beautiful in all weathers, young in all ages, one in all its names, whether it be called Ternessus or Liakoura or Parnassus, the lofty mountain stands there full of a light that is music and a color that is song. The words of Kostes Palamas, the greatest poet of modern Greece are not unworthy of its glory:

"Far glimmered the sea, and the harvest darkened the threshing floors;
I cared not for the harvest and looked not on the threshing floors;
For I stood on the end of the sea and thee I beheld from afar,
O white, ethereal Liakoura, waiting lest from thy midst
Parnassus, the ancient shine forth and the Nine Fair Sisters of Song.
Yet what if the fate of Parnassus is changed? What if the Nine
Fair Sisters are gone?
Thou standest still, O Liakoura, young and forever one,
O thou Muse of a future Rhythm and a Beautiful still to be born."

INDIAN HENRY'S HUNTING GROUND—RAINIER NATIONAL PARK

By A. Martha Walker

Mr. Muir has taught us that, if we are to see anything in the mountains, we are to go alone. Emerson has told us not to take with us Paris and Berlin. Another writer has told us to "go light." In cheerful remembrance of the above rules, I started at seven one morning, to walk from Longmire Springs (2,762 ft.), to far-famed Indian Henry's (6,000 ft.). It was the second week in July, but only the previous day the first pack-train had gone through the deep snow, for the season was late. I had asked about the trail and the distance and learned that it was "about eight miles, with an up and a down and then a long up again." That the whole upper region in there would be under snow was the prime attraction. To travel joyfully over snow-drifts in July, dressed in the thinnest summer garb, would be interesting.

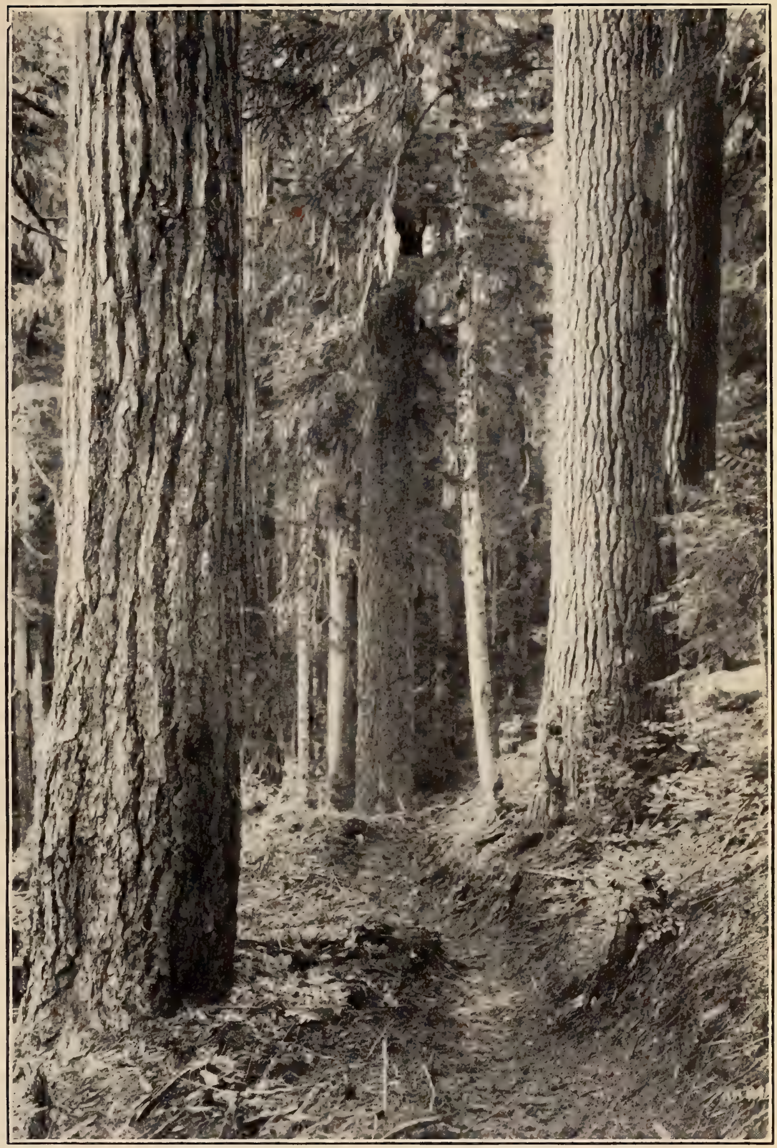
The trail was clear, and the dense, dark woods of a Washington forest are marvelous enough to incite anyone to walk thoughtfully and expectantly, eyes and mind both alert. Moss and greenery filled in the damp floor between the tall trees that kept out the sunlight. Only little patches of sunshine were sprinkled here and there. I remember once, when warm from exertion, trying to find enough sunlight space to lie down in, on the hill slope, but it could not be found.

When I had been an hour on the trail, I could hear below me the ring of a horse's hoof as it struck a stone. Soon appeared the beaming face of Johnny, with his first catch of the season's "tourists," all on horses.

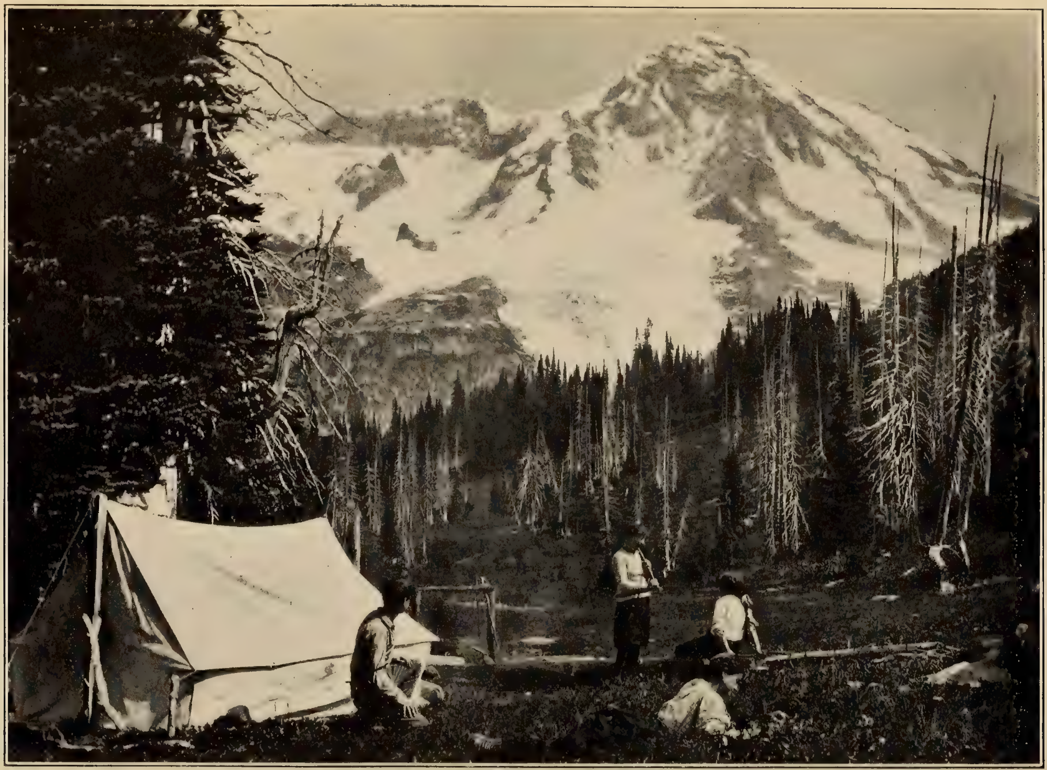
"You're doing well," he said.

"I may take lunch over in camp with you," I answered.

The "tourists" looked pityingly and patronizingly down on me from their high eminences. Soon all was peace and quiet again for the rest of the climb, up and up, one zigzag after another, but not yet to the top of the first ridge. It was there I would get my first view "out of the woods" and see the great



THE TRAIL TO INDIAN HENRY'S
Photo by A. H. Barnes



A SUMMER CAMP AT INDIAN HENRY'S
Photo by A. H. Barnes

mass of Rainier near at hand. A new trail leads off near here to Van Trump Park, where deer and mountain goats can be seen in herds. Twice that morning I saw deer feeding in the open, grassy glades below the trail. The silence of the vast forest took possession of me. "Thought was not—in enjoyment it expired." The trees so straight and firm made me involuntarily straighten up and be strong, too. It is not *work* to follow a trail like that—it is all pure joy.

I reached the ridge but only to hasten joyfully down the slope, cross the streams on bridges or stones, and lightly start up the next slope. Many times the dashing streams, fresh from the glaciers, would have made a delightful stopping-place, but the "unknown" ahead gave no rest. When I reached up high enough to get the view back to Mt. Adams (12,307 ft.), over the waving, dark sky-line of the intervening ranges, that seemed the most magical sight of all. Yet on again, and soon in snow, with no trail now save the horses' marks in the soft snow. It was easy to follow up and up through the splendid groves of fresh young trees. I was now in Indian Henry's—an enchanted land, if ever there was one. Great Rainier spread out directly in front of me and all around was deep winter's snow. The only dark spots were the tops of the spires of those magical trees, set in brotherly clumps here and there. All the winter scenes I had ever seen or imagined seemed included in this happy land. Whatever else Indian Henry did, he surely chose for his abode a region of amazing splendor.

What would it be in its summer robe, if now so lovely still in its winter robe of white? Flowers, they say, cover the hills in radiant luxuriance. For me, I shall always want to see it again, as I did that July noon, in 1913.

On the walk back to Longmire Springs that afternoon, I came upon a lovely mountain wanderer—a ptarmigan, out with her tiny little ones on the snow, picking flies in the warm sunshine. So gentle, sociable and altogether lovely they were, directly by me on the hillside!

Marmots, too, whistled to me as in the morning when I had answered "Hello" thinking them some kindly human spirit interested in my upward march! This completes the list of "wild animals" that I met on this never-to-be-forgotten trail.

SIERRA CLUB BULLETIN

PUBLISHED JANUARY AND JUNE OF EACH YEAR

Published for Members. Annual Dues, $3.00.

The purposes of the Club are:—"To explore, enjoy, and render accessible the mountain regions of the Pacific Coast; to publish authentic information concerning them; to enlist the support and co-operation of the people and the Government in preserving the forests and other natural features of the Sierra Nevada Mountains."

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EDITORIALS

DEATH OF JOHN MUIR As we were on the point of going to press the sad news of John Muir's death was flashed over the wires. He endured no long and painful waiting for the end. Death found him almost in the midst of his literary activities, which he had not laid aside even for the few weeks which he intended to spend with one of his daughters in Southern California. His was a rich and beautiful life. Its seventy-six summers had not jaded his faculties, nor abated a jot of his eager-eyed interest in the world whose gardens, wonders, and wildernesses were so fascinating to his eyes. And when he had seen, and written down what he saw, men, charmed by the tale of his deeper vision, went back armed with his eyes, even to the familiar, and found there new revelations of beauty. It may take a generation before we shall find the measure of this truly great man. Natural science, geography, and literature, will each attempt their appraisement. His leadership in securing the establishment of national parks calls for adequate recognition in the form of a lasting memorial. What concerns us most deeply now is the fact that the Sierra Club has lost in him its first and only President, for since 1892 he has held that office continuously. He leaves an invaluable heritage of traditions to the Club, and we cannot do less than to devote the next issue of the SIERRA CLUB BULLETIN to his memory. W. F. B.

PARSONS MEMORIAL LODGE The plan to erect an appropriate memorial in honor of Edward Taylor Parsons, who was such a devoted worker in behalf of the Sierra Club, has gained considerable headway. As a result of the subscription that was raised for this purpose, nearly one thousand dollars has been pledged. By using this amount economically, the Committee appointed by the Board of Directors of the Sierra Club feel that a small but suitable lodge can be erected in the Tuolumne Meadows on the Soda Springs property, controlled by the Club. The idea is to have one good-sized room with a large fireplace in one end, the walls to be built of stone which is immediately available in unlimited quantity. Such a building would prove most serviceable in many ways. In connection with the proposed Sierra Club camp to be established in the Meadows this coming summer, and which may prove to be a permanent institution, this lodge will serve as a reading-room and library, and gathering room in the evening. It can also be used as a headquarters by members of the Club who visit the Meadows. The building will therefore serve not only as a memorial but will prove of increasing value to the Club and its members. W. E. C.

A National Park Service

The importance of having a National Park Service or Bureau created by Congress as a branch of the Department of the Interior, becomes greater each day. If we are to have a consistent policy of protecting and improving these parks and promoting their general welfare it can only be accomplished by means of some such branch of the Government which shall devote all its time and energy to these important questions. During the past year the policy of policing and protecting our national parks by means of officers and soldiers detailed from the United States Army, was abandoned. While this system had proved quite effective in enforcing park rules, and was also desirable from the standpoint of economy, yet there was some valid criticism to be made of this plan. In place of the Army Patrol, civilians were appointed as park rangers. It is perhaps unjust to criticize this innovation until it has been given a fair trial and until trained rangers can be installed to take the place of many inexperienced ones who had to be selected as a matter of necessity following the suddenness of the change of policy. If a sufficient number of experienced rangers can be employed permanently, there is no doubt but that the change will eventually prove to have been for the best, for one of the great objections to the Army was that as soon as an Army detail had become familiar with the park conditions, it would be called away to some other post. Under the new system the ability to cope with a serious fire will probably not be as great as where a number of troops could be called on. If the new system produces a set of park rangers who are as well fitted for their work as are the rangers now employed by the Forest Service, and if the employment of temporary rangers of little or no experience can be avoided, then this innovation will probably be justified. In this connection we are more than pleased to note the appointment of Stephen T. Mather of Chicago, and formerly of California, who has long been an enthusiastic member of the Sierra Club, to the position of Assistant to the Secretary of the Interior. One of his main functions will be to take charge of all of the national parks, and our acquaintance with Mr. Mather is such that we feel the welfare of these parks could not be in better hands. W. E. C.

Attention Alpinists!

The opening of the Panama-Pacific International Exposition is at hand. Among the multitudes who will come to San Francisco from other lands there are sure to be members of alpine clubs and other organizations that foster and promote interest in out-door recreation and sports. To such the Sierra Club extends a hearty invitation to make our Club Rooms in the Mills building your headquarters, and mail may be addressed in care of the Club. Expert information about the High Sierra will be placed freely at your disposal, and a register of names and addresses may be made the means of facilitating mutual acquaintance and intercourse. You are invited to join in our local walks and participate in the summer outing. When you reach San Francisco pay a visit to our Club Rooms and claim your welcome! W. F. B.

YOSEMITE NATURAL HISTORY SURVEY The members of the Club will be interested to learn that Director Joseph Grinnell, of the University Museum of Vertebrate Zoology, has succeeded in financing a natural history survey of Yosemite National Park. Individual members of the Club are giving support to this excellent enterprise, and the intention is to publish the general results of the survey under the auspices of the Club. Dr. Grinnell and his assistants are in the field now, gathering materials. The latter will consist of representative series of specimens of mammals, birds, and reptiles of the area explored. These specimens, as well as the field-notes, photographs, and maps secured by the members of the exploring party, will become the property of the University of California Museum of Vertebrate Zoology. It scarcely is necessary to point out that members of the Club on their annual outings will find the published results of this survey, when completed, an invaluable guide to the wild life observed in the park. At the present time only the scantiest information about the birds of the park is available in print, and practically nothing about mammals and reptiles. W. F. B.

SECURE NEW MEMBERS Although the Sierra Club has grown steadily during the past few years, it is still by no means as large as it should be. There are many people throughout the State of California, as well as in other parts of the country who are actively interested in the things that the Club stands for and who might become helpful members if the purposes of the Club were made clear to them. The Club needs more members, as it is only through its membership that it can carry on its many activities. Every one of our present members should be able to think of at least one friend who is interested in some one of these activities. Do not set this aside lightly, but consider if you cannot think of some one who would be interested in joining the Club. F. P. F.

REPORTS OF COMMITTEES

REPORT OF THE SECRETARY, MAY 3, 1913, TO MAY 2, 1914

The total membership of the Club at the end of the Club year is 1797, making a net increase of 207 members during the year. The total number of new members added during this period was 282, which is the largest increase within the history of the Club. There were seventy-five names dropped during the year, owing to resignations, death and non-payment of dues. A large share of the credit for the unusual increase of membership during the past year is due to the activities of the Southern California section of the Club. They have completed the Muir Lodge in Santa Anita Cañon and it has proven to be a very attractive feature of the Club life in Southern California. With a little energetic work during the coming year, the membership of the Club ought to reach the 2,000 mark by May, 1915.

The Club will have an exceptional opportunity during 1915 to entertain members from other mountaineering and Alpine Clubs who come to visit the Exposition. We will expect all such members to make their headquarters at the Club Room and join in the local walks and outings. In order to accommodate the large number who will wish to see something of the high Sierra, we are planning to have a central camp established on the Soda Springs property at Tuolumne Meadows during July, August and possibly September, 1915. By having a pack train running between this camp and the Yosemite Valley, we will be able to take care of a large number of visitors. From this central camp a continuous series of side trips will be taken to the innumerable points of interest which can be easily reached from this camp as a center.

The interest in the local walks is steadily increasing, both in the vicinity of San Francisco and in Los Angeles. Great credit is due Mr. James E. Rother and the Local Walks Committee in Northern California, and too much praise can not be given Mr. Phil S. Bernays and his associates for the very excellent work that is being done in Southern California.

Active work on the trail which will open up Grouse Meadows on the Middle Fork of the Kings River so that it can be entered from the West, will be prosecuted this summer. This is a trail that will mean much for future travel into this region.

Respectfully submitted,
Wm. E. Colby,
Secretary

REPORT OF THE TREASURER, MAY 3, 1913, TO MAY 2, 1914

To the Board of Directors of the Sierra Club:

Gentlemen: I beg to submit the following report on the finances of the Sierra Club for the year ending May 2, 1914:

GENERAL FUND

Receipts

Cash on hand May 3, 1913		$2,883.55
Cash received from the Secretary:		
Dues	$4,592.00	
Advertisements	565.00	
Rent of club rooms	180.00	
Refund of Appalachian postage	109.00	
Sale of club pins	58.50	
Sale of Bulletins	9.29	
Interest on savings deposits	62.88	$5,576.67
Total cash received		$8,460.22

Expenditures

Publication:		
Printing and delivering Bulletins Nos. 49 and 50, and Appalachia, June, 1913		$2,309.86
Rent:		
Rent of rooms, Mills Building	$ 720.00	
Rent of telephone	79.21	
		$ 799.21
Service:		
Salary of Assistant Secretary	$ 720.00	
Extra Service	7.45	$ 727.45
General postage		$ 510.80
Printing of circulars		343.40
Amount paid toward construction of Muir Lodge out of dues of new members from Southern California		228.00
Regular amount voted to Southern California section		150.00
Public lectures		158.60
Amount authorized for clippings		145.75
Purchase of club pins		136.80
Stationery		129.60
Le Conte Memorial Lodge		108.70
Club room expenses		100.74
Wild Cat Cañon Reunion		45.40
Library Additions		24.50
Soda Springs taxes		23.73
Carried forward		$5,942.54

Brought forward		$5,942.54
Telegrams		15.67
Dues to other organizations		13.00
Express		3.85
Exchange		1.44
Sundry small items		12.85
Total expenditures		$5,989.35
Cash on hand, May 3, 1914:		
First National Bank	$1,631.99	
Savings Union Bank	542.06	
Security Savings Bank	279.30	
In office	17.52	$2,470.87
		$8,460.22

Sierra Club Permanent Fund:

May 3, 1913—Balance in Security Savings Bank	$1,166.53
New life memberships during year	150.25
Interest accumulated during year	45.61
May 2, 1914—On hand in Security Savings Bank	$1,362.39

Whymper Fund Bequest:

May 3, 1913—Balance in Sav. Union B. & T. Co.	$ 221.28
Interest accumulated during year	8.92
May 2, 1914—On hand in Sav. Union B. & T. Co.	$ 230.20

Respectfully submitted,
J. N. LE CONTE,
Treasurer

REPORT OF 1914 OUTING

The 1914 Outing was the sixth time that the Sierra Club has visited the Yosemite National Park on its annual trips. On account of the great number of attractions presented by this comprehensive circuit of the park, it is one of the most popular trips that the Club takes, and many applicants had to be refused who applied after the list was complete. In many ways the outing proved the best and most successful of any in the Club's history. Two hundred and twenty-five members participated, and with the camp help and packers the total number of the party exceeded 250. The preliminary camp in the Yosemite Valley was also well attended. Despite the fact that this was the largest party that the Club has ever taken into the mountains, the entire outing ran more smoothly from the executive standpoint than any previous trip. This was undoubtedly in large part due to the fact that there were more assistants than ever before with experience acquired on past outings.

Cathedral Peak and Mt. Hoffmann

Echo Peak and Columbia Finger

PANORAMA FROM SUMMIT OF UNICORN PEAK, WHICH IS OPPOSITE CENTRAL CAMP OF 1915

Photos by Francis P. Farquhar

LAMBERT DOME AND KUNA CREST FROM SODA SPRING—THE SITE OF THE CENTRAL CAMP FOR 1915

Photo by Bert Bare

The itinerary of the outing is fully described in articles appearing in this issue of the BULLETIN and it is unnecessary to repeat it here. The climb of Mt. Lyell was undertaken as one of the side trips from the camp in the Tuolumne Meadows, and seventy-seven members of the party reached the summit on one of the most enjoyable climbs in the Club's experience. A little later about sixty members of the party participated in a knapsack trip down the Tuolumne Cañon. A few went through to Hetch Hetchy Valley, but most of the knapsackers climbed out of Pate Valley and rejoined the main party at its camp on Piute Creek in Pleasant Valley. With a little work in the way of cutting brush and small growth of trees and marking the route, this trip could be made very much easier. While it is probably useless to hope for a trail down the Cañon for some years to come, yet the building of one will not present very great difficulties and will make it possible eventually for persons to walk from Tuolumne Meadows to Pate Valley in one day easily, and this will be especially feasible if there are camps or at least opportunities for obtaining supplies of provisions at each place.

In order that the outing for 1915 shall present the opportunity of visiting the mountains to as many of our members as possible, and especially those from other mountain clubs who may journey to the Coast to see the expositions in San Francisco and San Diego, the plan of having a central camp established in the Tuolumne Meadows during the months of July, August and possibly September, will fill this need to greater advantage than any other form of outing that can be planned. Possibly an advance camp in the Yosemite Valley during June may be established if there is sufficient demand for it. The details of these plans will be found elsewhere in this BULLETIN.

Respectfully submitted,
OUTING COMMITTEE,
Per Wm. E. Colby, *Chairman*

OUTING FOR 1915— A CENTRAL CAMP IN THE TUOLUMNE MEADOWS

The question of where and how to conduct the Outing for 1915 has been a serious problem for the Outing Committee, in view of the large number of visitors who will naturally come to the Coast to visit the expositions to be held at San Francisco and San Diego. In order to meet this situation, it has been deemed the best policy to establish a permanent camp on the Soda Springs property controlled by the Club, in Tuolumne Meadows, during the months of July, August, and possibly a portion of September in 1915. This camp will be conducted on a plan somewhat similar to the manner in which the camps have been conducted on the annual outings of the Club heretofore. There will be no opportunity for luxury, but plain, simple meals will be served, and tent and sleeping accommodations will be furnished for a limited number. Those members of the Club who bring their sleeping-bags and personal outfit with them, will be able to join this camp and get accommodations for probably $1.50 per day. Those who require tents and sleeping outfit will pay proportionately: probably $1.00 per day in addition to meals.

If this camp proves to be a success, it will probably be made a permanent institution, and any small profit which may be derived from operating it, will be used toward the complete acquisition of title to the Soda Springs property by the Club and the building of suitable headquarters. This plan ought to add materially to the value and prestige of the Club.

There is no more delightful spot for a permanent camp of this character than on this proposed site, commanding as it does a wonderful view of snow-capped peaks encircling the meadows, with the splendid river flowing past the camp. The site is more admirably suited for the taking of interesting side trips than any other which could be selected in the High Sierra. It is our plan to have a pack train running regularly between the camp and the Yosemite Valley, carrying mail and bringing persons back and forth, and also to have another pack train entirely devoted to taking parties on side trips.

From present indications there will be great demand for places in this camp, and in order to aid in its planning and preparation, it is quite important that any members of the Club who desire to join this camp should notify us of such fact now so that we can plan accordingly. Relatives of members, and possibly friends, will also be permitted to join this camp on payment of a small additional fee. Kindly notify the Secretary of the Club approximately how long a stay is desired to be made, and the approximate dates in either July, August or September of 1915. These applications will not be considered binding but of only a provisional nature. Probably a preliminary camp of two weeks at the end of June will be established in the Yosemite Valley also. Full details will be issued during the spring.

It was deemed advisable to postpone the visit to Glacier National Park for this year and concentrate all our effort on the Tuolumne Meadows camp.

OUTING COMMITTEE,
Wm. E. Colby, *Chairman*

REPORT OF THE LE CONTE MEMORIAL LODGE COMMITTEE, SEASON OF 1914

To the Le Conte Memorial Lodge Committee:

The Lodge was officially open from the 16th of May until the 10th of August, 1914. During that time 2,904 visitors registered. As many who visited the lodge failed to register, 5,000 would be a conservative estimate of the total number of visitors in the busiest summer Yosemite has ever known. The Lodge is approved and praised by every one. Some dissatisfaction is expressed that it is not a loan library, but it seems to me that there are good reasons for keeping it as it is, a reference library.

There are two needed repairs. The floor in front of the fireplace has buckled. It would be better, instead of repairing it, to take out the wood and replace it with stone to lessen the danger from fires. The outer wall on the west wing has loosened and spread away from the building and should be anchored.

The addition of a reading desk for newspapers and a rack for the club Bulletins to the equipment of the Lodge is advisable. Mr. French's suggestion that a hydrant be put near the Lodge is so good that I repeat it.

There was presented by the California School of Mechanical Arts through Mr. George A. Merrill one pair of andirons. There have also been donations to the library.

Respectfully submitted,
Wm. T. Martin, *Custodian*
Lydia Atterbury,
J. N. Le Conte,
Le Conte Memorial Lodge Committee
Mrs. E. T. Parsons, *Chairman,*

REPORT OF SOUTHERN CALIFORNIA SECTION OF SIERRA CLUB

The Southern California Section of the Sierra Club has manifested a considerable degree of activity and progress during the year 1914. Despite financial depression which has prevailed everywhere, we have put our shoulder to the wheel, and by concerted action among numerous Southern members, have successfully purchased a Men's Cabin on an adjoining leased site to Muir Lodge, the lodge itself having been financed only a year ago at an expense of some $1,300.00. The growing popularity of Muir Lodge, and increase in membership of the Sierra Club, made this addition a necessity. The thousand and more members and guests registered since Muir Lodge has been completed (October 5, 1913), speaks for itself of the success of this as a Sierra Club achievement.

The Local Walks held by the Southern California Section weekly, have been exceptionally well attended in 1914. Our ascent of Mt. San Gorgonio (Grayback), 11,485 feet, and the highest mountain south of the Tehachapi, attracted a record attendance. A Sierra Club cylinder was placed in the cairn on the summit, and over forty names recorded for having climbed from Forest Home Resort and spending the night at the timber line (10,800 feet).

We announced at our splendidly attended banquet and exhibition of Pillsbury Motion Pictures, the results of the annual election of the Southern California Directorate.

The amendment to extend the term of office to two years passed successfully.

The Executive Committee will elect its own officers at the organization meeting, shortly after the New Year.

Respectfully submitted,
P. S. Bernays,
Secretary of Southern California Section Sierra Club

NOTES AND CORRESPONDENCE

Edited by Wm. E. Colby

In addition to longer articles suitable for the body of the magazine, the editor would be glad to receive brief memoranda of noteworthy trips or explorations, together with brief comments and suggestions on any topics of general interest to the Club. Descriptive or narrative articles, or notes concerning the animals, birds, fish, forests, trails, geology, botany, etc., of the mountains, will be acceptable.

The office of the Sierra Club is Room 402 Mills Building, San Francisco, where all Club members are welcome, and where all the maps, photographs, and other records of the Club are kept.

In Memoriam: John Knox McLean

On the sixteenth of last February one of the most distinguished and influential members of the Sierra Club passed out upon the long trail. John Knox McLean was born in Jackson, New York, on the thirty-first of March, 1834. He removed from Springfield, Illinois, to Oakland, California, in April, 1872. From that time until 1895 he continued as pastor of the First Congregational Church, which, under his superb leadership, soon developed into one of the largest and most influential church organizations in the State of California. For eighteen years Dr. McLean was President of Pacific Theological Seminary. He also filled distinguished positions in the service of the State, notably as a member of the State Board of Charities and Corrections, of which he was President since 1906. Dr. McLean was one of the charter members of the Sierra Club when it was organized on the fourth of June, 1892. On the fifth of November in the same year he read a paper on "The Upper Sacramento in October" before a numerous gathering of Club members in the old Academy of Sciences Building. This paper was published in the second Bulletin issued by the Club. It was he who was chiefly instrumental in calling public attention to the wonderful scenic features of the Shasta region, and the Upper McCloud River. But he also did much camping and climbing in the High Sierra and accompanied the Club on two of its annual Outings. His fine appreciation of nature is exhibited in an unpublished paper read before the Berkeley Club a number of years ago. We have included extracts from it among the articles in this Bulletin. Most of the members of the Club knew Dr. McLean personally and all loved him. The Directors a few years ago recognized the valuable services which he gave to the objects of the Club, and to the promotion of out-door interests, by electing him an Honorary Member. Elsewhere in this number will be found a review of the choice and interesting biography of Dr. McLean, written by John Wright Buckham. It is a rich heritage of deeds and memories which our departed fellow member and "herald of a higher race" has bequeathed to us.

W. F. B.

IN MEMORIAM: HILDA MURIEL ATKINSON

Hilda Muriel Atkinson, who died of typhoid fever July 29, 1914, in the Yosemite Valley, after a brief illness, was one of the most enthusiastic members of the Sierra Club, and one of the most ambitious and intrepid of the women climbers. She was always cheerful and met the petty discomforts and hardships of camp life with a good-natured laugh and enjoyed it all with the keenest zest. By nature she was loyal, brave and open-hearted. She underwent the trying ordeal of being carried on a litter down from Tuolumne Meadows to Yosemite, a journey of twenty-five miles, without the slightest note of complaint, and with a most grateful appreciation of the willing services of those who acted as carriers. From every standpoint, as a mountaineer, a lover of nature, a frank and genial companion, a seeker for things beautiful and inspiring, and a sympathizer with all the phases of out-of-door life, Miss Atkinson ranked as one of our best members. She will long be held in affectionate remembrance by all who knew her.

EDNA POTWIN

A PROPOSED BIOLOGICAL SURVEY OF YOSEMITE NATIONAL PARK

San Francisco, California, May 2, 1914

To Members and Friends of the Sierra Club:

We, the Directors of the Sierra Club, being convinced that the wild birds and animals of the Yosemite National Park are among its most conspicuous, important, and interesting features, and realizing that publications of any sort on the wild life of the Yosemite National Park are few and that authoritative and adequate treatment of its birds and animals is lacking, do hereby declare our interest in, and desire for, the publication of a report which shall be distinguished by its authority, adequacy, and popular interest. We believe that such a publication would be eminently useful, not only to the members of the Sierra Club, but to the host of casual visitors to the Yosemite. We wish to express our appreciation of the generous offer of co-operation which has been given us by the California Museum of Vertebrate Zoology, and to bespeak our confidence, on the basis not only of future promise, but of past performance, in the abilities of the members of the staff of this institution to bring results which will be creditable to all concerned.

The situation is now as follows: The Directors of the Sierra Club agree to see to financing the publication of the results of the work; the officials of the California Museum of Vertebrate Zoology agree to direct the necessary investigations, and to supervise the preparation of the report; it now remains for the expense of the Survey itself. and of the necessary subsequent work. estimated at $2,070, to be met.

With these considerations in mind, we, the Directors of the Sierra Club, do commend this matter to yourself as a member or friend of our organization, trusting that you will give it your most careful consideration with a view to contributing toward the amount of this expense, should the enterprise here outlined meet with your approval.

The matter represents some sacrifice all around: the Sierra Club is assuming a burden in financing the publication, and the officials of the California Museum of Vertebrate Zoology are putting aside other interests to take care of this one; but this is, to our minds, so favorable an opportunity of adding to our knowledge of the Yosemite National Park, that we recommend your financial support of the project as a well warranted outlay.

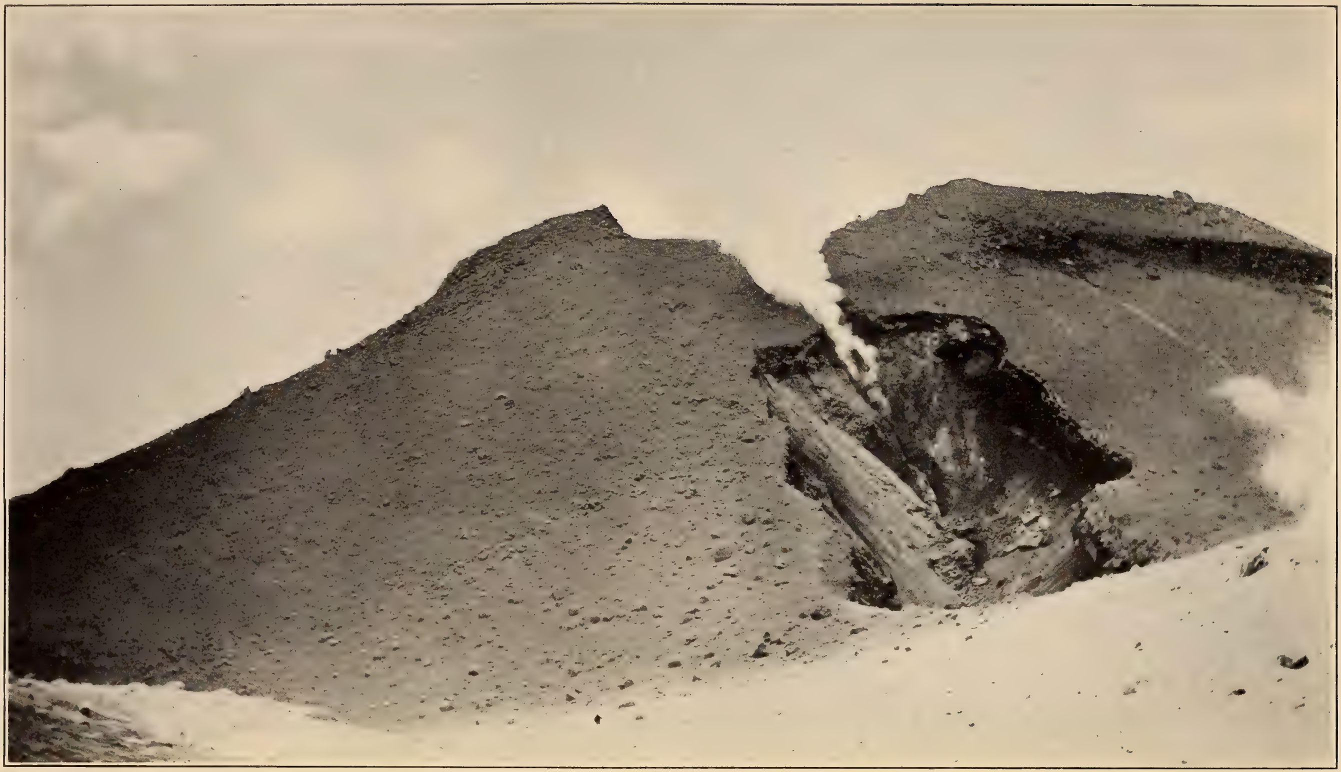
Directors of the Sierra Club

Prospectus

Object.—To find out what species of mammals, birds and reptiles exist in the area explored; to learn as much as possible concerning the local distribution of each species, and to map out the general life areas within the region; to learn as much as time permits of the habits and ecologic relationships of each of the species, in other words their natural history; to put all this information upon permanent published record, in a form to be attractive to the public, both lay and scientific.

Justification.—The Yosemite National Park is visited by thousands of people each year, a certain proportion of whom would find an account of its natural history of immediate service as a source of information concerning the animal life encountered. The natural history of so famous a region as that containing the Hetch Hetchy and Yosemite valleys would doubtless prove of wide acceptance also among people not privileged to visit this National Park but who have a general interest in the out-of-doors. Only the merest fragments of information have up to the present time appeared in print concerning the birds of the region; and practically nothing has appeared as regards the mammals and reptiles. From a scientific standpoint a detailed comparative faunal study of the central Sierra Nevada on both of its slopes would be a highly desirable consummation. This would fill in the gap now existing in our knowledge of the vertebrates of California.

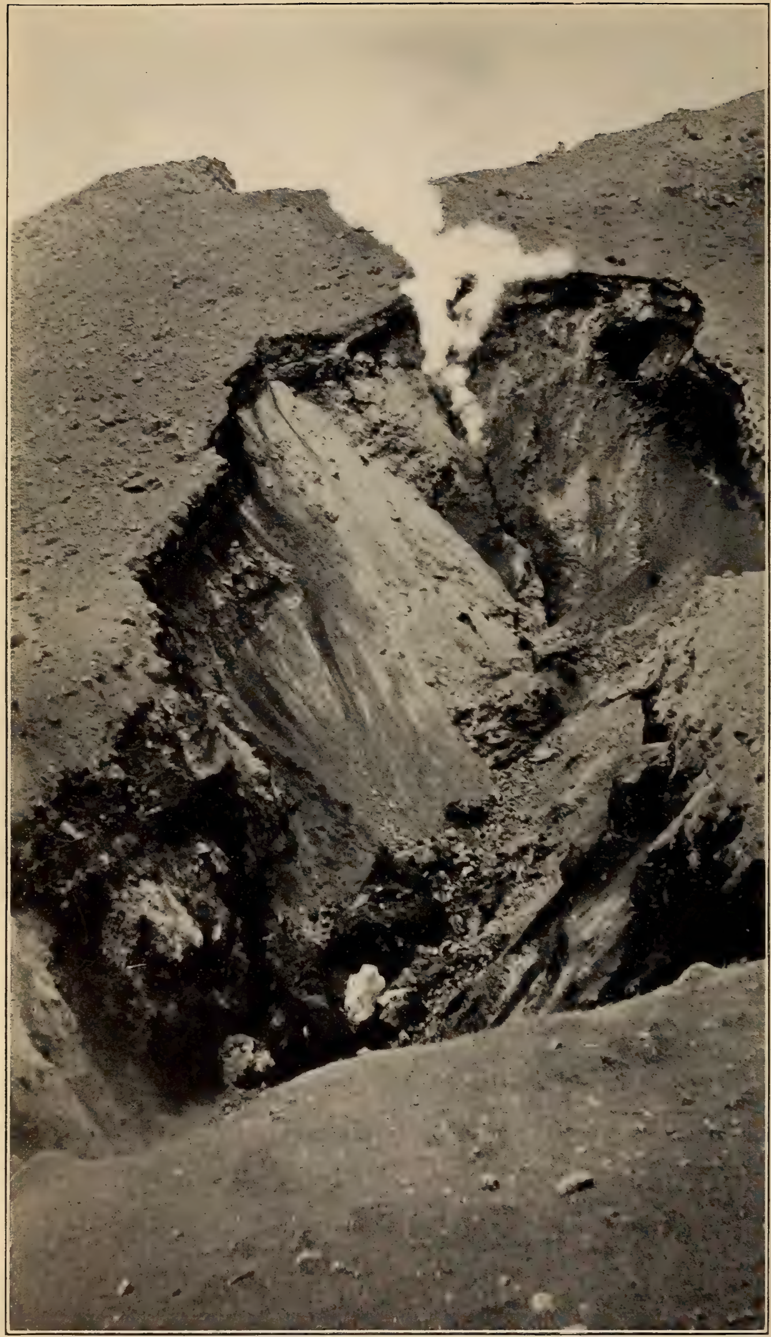
Itinerary.—From a distributional standpoint it is desirable to complete a faunal cross-section of the Sierra from one base to the other, say from Merced Falls across the Yosemite National Park to Mono Lake. A feasible route between the points named would lie along the Coulterville and Tioga roads. Twelve or more base stations would be made to adjacent points as seemed necessary, such as Hetch Hetchy and Yosemite valleys. It would thus be possible to study closely every life-zone and association represented in the region trav-



CRATER ON MT. LASSEN, JUNE 16, 1914

Snow cap of mountain covered with layer of ash and stones. Note tracks at right of crater exposing streak of snow through ash

Photo by J. M. Howells



CRATER ON MT. LASSEN JUNE 16, 1914
Crater was then six hundred feet long. Note block of snow ten feet long which has fallen in bottom of crater
Photo by W. H. Wright

ersed. The cross-section indicated would run from an altitude of 500 feet to that of over 10,000 feet, thence down to 6,500 feet.

Disposition of Material.—It is understood that all material secured by the expedition would become at once the property of the University of California Museum of Vertebrate Zoology, and would hence belong to the State of California. This resulting material would consist of representative series of specimens of the mammals, birds, and reptiles of the area explored, and of the field-notes, photographs and maps secured by the members of the party. All this material would become the basis of the proposed published general account of the natural history of the region, and of such other scientific papers as prove warranted at once, and as time goes on and material from adjacent areas accumulates.

Equipment.—The staff of the Museum of Vertebrate Zoology is well qualified to put through the proposed program by reason of its six years experience in making similar surveys in different parts of the west. Reference to our published reports upon (1) the San Bernardino Mountains, (2) the San Jacinto Mountains, (3) the Pine Forest Mountains of Nevada, (4 to 6) the three Alexander Expeditions to southern Alaska, and (7) Vancouver Island will, it is believed, show what we are equipped to carry on work of this sort with economy in cost, efficiency in method, and scientific accuracy in compilation of results.

Activities of the California Botanical Society

In early September the Society began an active season, devoted chiefly to field work. Up to the first of December a trip to some place of especial botanical interest was made nearly every week.

On October 9th and 10th an exhibit of plants representative of various ecological formations was arranged. Salt marsh, sand dune, chaparral, and other plant groups were shown as they are associated in nature. A lecture by Dr. H. M. Hall impressed upon the listeners the depth of purpose in the exhibit, and showed the place which the study of ecology has come to occupy in modern botanical research.

The season closed December 12th with an informal dinner arranged in honor of Mr. S. B. Parish of San Bernardino and Mrs. Parish. Mr. Parish has been engaged in botanical work for many years and remembers the visits to California of such eminent botanists as Sir Joseph Hooker, Prof. Asa Gray, Prof. Pringle, and others. His reminiscences of these visits proved alive with interest and humor, and the occasion was thoroughly enjoyed by the members present.

THE LOOKOUT ON MOUNT LASSEN

BY WILLIAM C. HODGE

The forest fire lookout house on Mount Lassen was destroyed by the eruption of June 12th. After the first eruption, which occurred May 30th, the summit was scaled by Ranger Harvey Abbey, of the Lassen National Forest, who left Mineral at 4 P. M., May 31st, and arrived on top next morning at 9 A. M. He found the house unharmed. The crater from which the explosions were issuing was situated about a quarter of a mile from the lookout house; but the crater at this time was small, measuring only 25 by 40 feet, and the eruptions, although spectacular, were not yet considered dangerous.

On June 12th, after eruptions had occurred on June 1st 2d, 8th and 9th, Abbey made another ascent with a party, which included a moving-picture outfit. One of the party suffered from fatigue, being unused to mountain climbing, and in consequence the entire party was considerably delayed. At 3:45 P. M., while they were still half a mile from the peak, a terrific explosion occurred, and all had to run to escape the shower of stones. This eruption was brief, and Abbey resolved to take another chance, which he did. He found the crater greatly enlarged and the roof of the lookout house punctured by rocks. One had fallen upon a rafter, but, instead of smashing things, it had merely sliced its way through the timber.

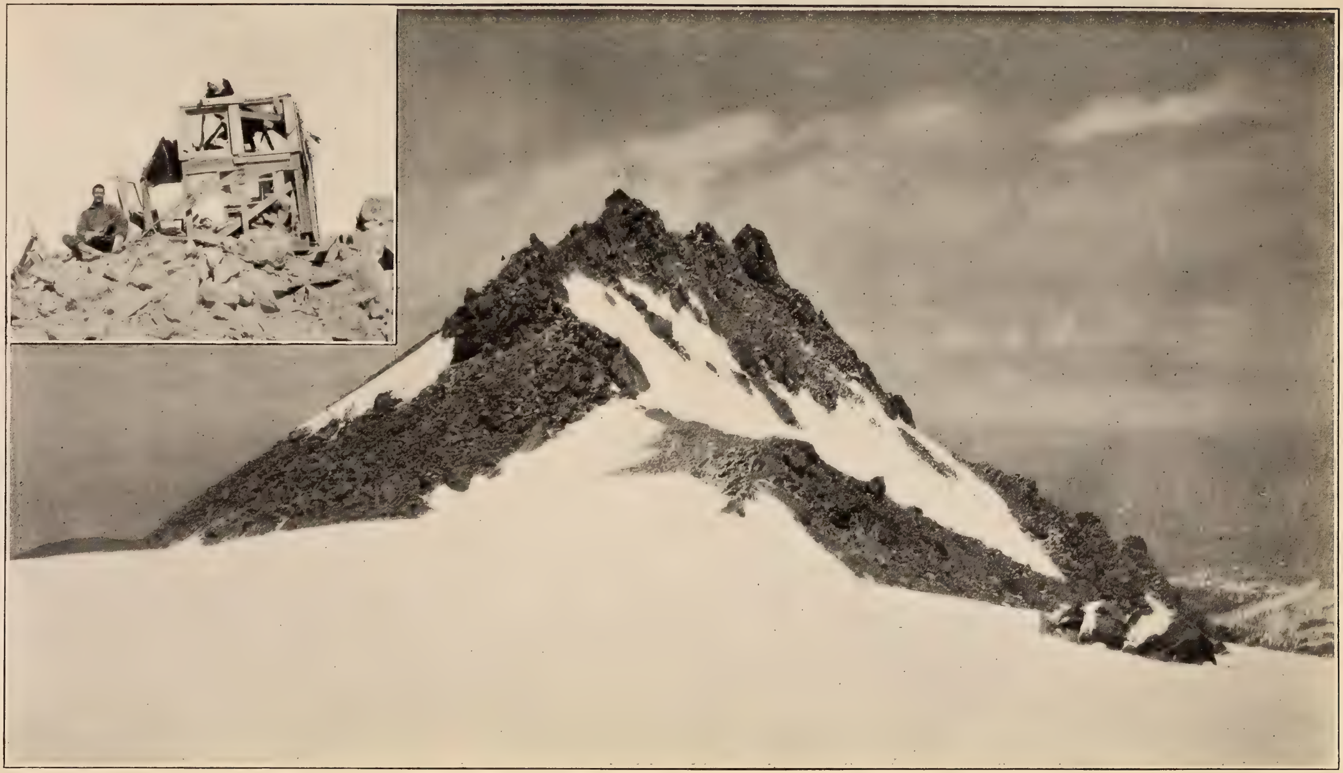
The explosion of June 14th seriously injured two sight-seers, who were caught in the rain of rocks. Eruptions still continue at intervals, and the peak is regarded as unsafe for visitors and untenable as a lookout.

The lookout cabin on Mount Lassen was one of the most interesting in California, even before its destruction. It was carefully designed by former Supervisor Kling. No one part was larger or heavier than could be packed on a man's back, and by an ingenious method of joints, the house, when set up in the shop at Red Bluff, was as stable and rigid as a fort. After being assembled at the shop, it was taken apart and the pieces transported as far as possible up the mountain by wagon. Pack horses were used as far as they could go, finally giving way to the most primitive means of transportation—men's backs.

The house was 14 by 14 and was provided with every appliance needed by the lookout man in the performance of his duties. Instead of one, or a few windows, it had a ribbon of glass extending entirely around the building, affording a practically uninterrupted view for the man inside.

Forest Supervisor Rushing has taken steps to equip for lookout purposes another peak in lieu of Lassen. The new point is Brokeoff Mountain, a few miles distant.

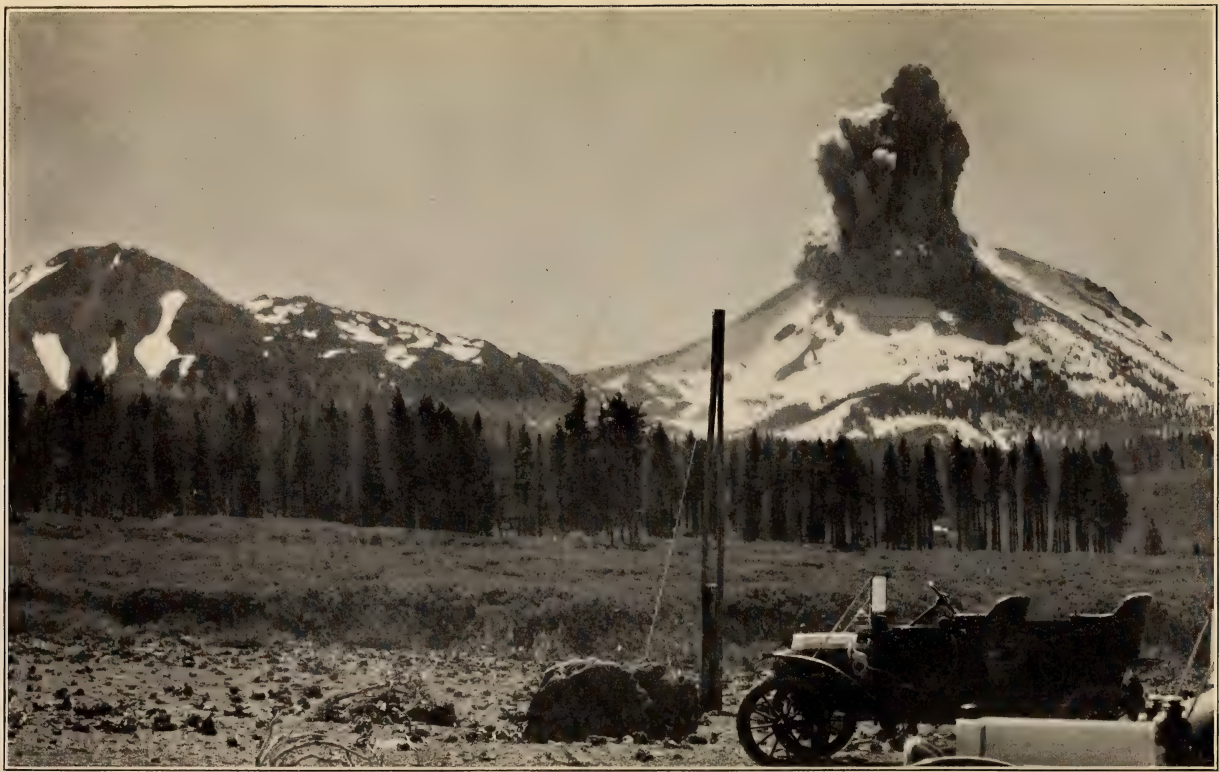
At last accounts the crater measured 600 by 150 feet. No flames or lava have been seen at any time.



SUMMIT OF MT. LASSEN BEFORE ERUPTION

Note Forest Service lookout on highest point. Insert: Same building after eruption. This house was about five hundred feet higher than the crater and a thousand feet distant horizontally

Photos from U. S. Forest Service



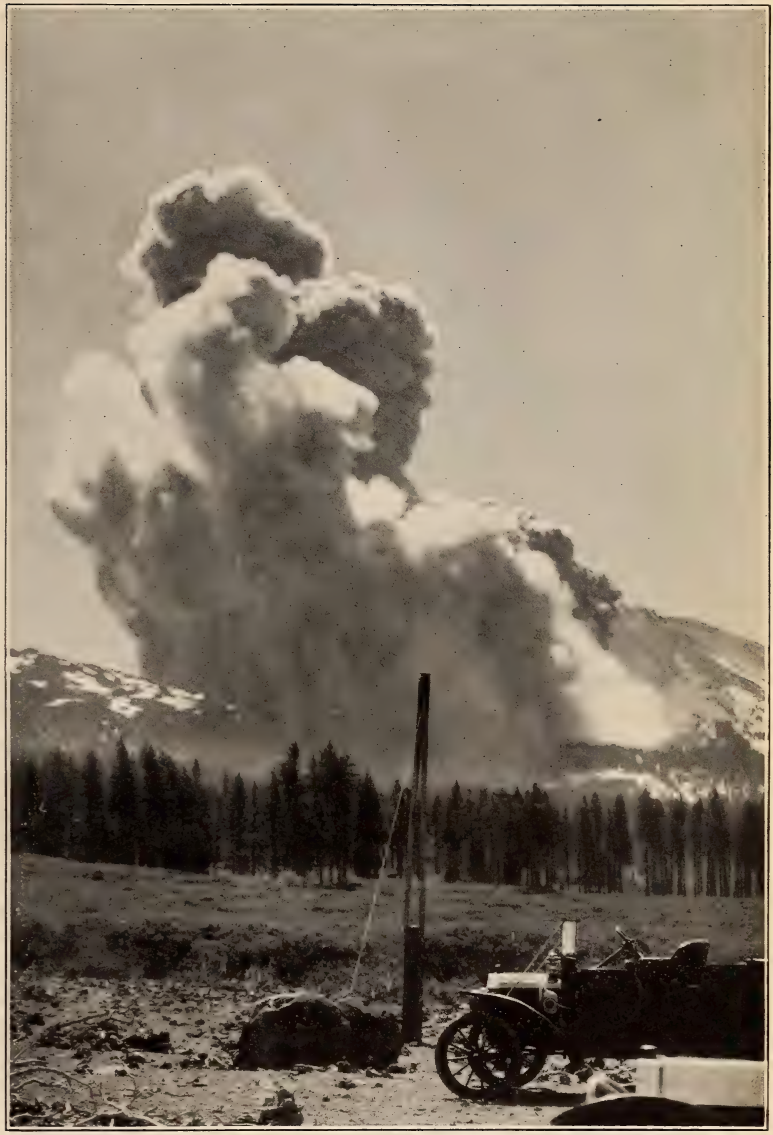
BEGINNING OF AN ERUPTION OF MT. LASSEN

Photo copyright by B. F. Loomis

RECORD OF ERUPTIONS UP TO OCTOBER 7, 1914

No.	Date		Time	Character of	Duration	Crater Size
1	Sat.	5/30	5:00 pm	Heavy.	10 min.	25 x 40 275 x 60
2	Mon.	6/1	8:00 am	Heavier.	15 min.	60 deep
3	Tues.	6/2	9:30 am	Very heavy.	30 min.	
4	Mon.	6/8	4:30 pm	Heavier.	40 min.	
5	Tues.	6/9	10:30 am	heavy; steam darker	30 min.	
6	Fri.	6/12	3:45 pm	Heavy; steam very dark.	50 min.	400 x 100
7	Sat.	6/13	6:00 am	Ashes fell Mineral. Heavy.	30 min.	
8	Sun.	6/14	6:00 am	Unconfirmed. Reported by Red Bluff.	?	
9	Sun.	6/14	9:43 am	Altitude smoke 2500 feet. Heaviest yet.	30 min.	
10	Sun.	6/14	6:45 pm	Medium.	15 min.	450 x 125
11	Fri.	6/19	8:15 pm	Altitude smoke 2000 feet. Medium.	15 min.	600 x 150
12	Mon.	6/29	3:00 am	New snow covered by layer of ash.	?	
13	Tues.	6/30	11:06 am	Heavy. Series of slight eruptions followed first. Alt. 2800 ft.	40 min.	
14	Wed.	7/1	5:30 am	Heaviest yet. Alt. 5900 ft.	50 min.	
15	Thur.	7/2	6:50 am	Very heavy.	30 min.	
16	Mon.	7/6	3:30 am	Reported by Red Bluff; heavy; steam and smoke from entire length of crater.	30 min.	
17	Mon.	7/13	3:07 pm	Medium. Air calm. Thin column steam rose to height of 1800 ft. Little ash visible west end crater.	40 min.	
18	Wed.	7/15	6:05 am	Very heavy. Of long duration	4 hours	
19	Wed.	7/15	12:05 pm	Greatest disturbance thus far. Exceeded previous eruptions in intensity and duration. Great quantities of dust thrown out		

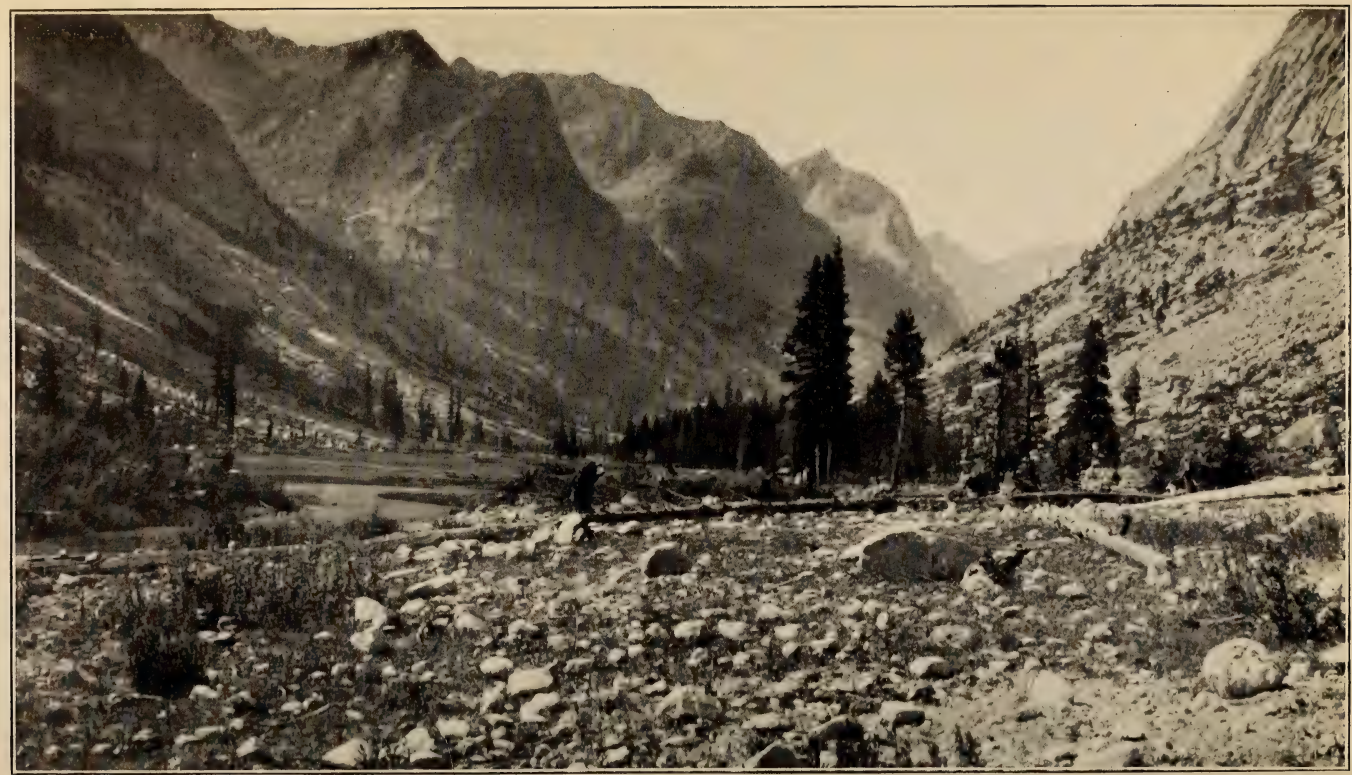
No.	Date	Time	Character of	Duration	Crater Size
20	Thur. 7/16	12:30 am	Very heavy. Volcanic dust fell at Mineral	Intermittently thru early morning hours.	
21	Thur. 7/16	4:30 am	Heavy eruption	Several hrs.	
22	Fri. 7/17	6:00 am	Heavy eruption. Volcanic ash fell at Mineral	Several hrs.	
23	Fri. 7/17	11:47 am	Heavy eruption	Several hrs.	
24	Sat. 7/18	5:28 am	By far most violent eruption to date. Ash, steam, etc., rose to height of 11,000 feet.	Practically entire morning.	
25	Mon. 8/10	5:30 pm	Medium. Small quantity ash	Continued after dark.	
26	Wed. 8/19	7:24 am	Very heavy. Huge clouds ash thrown out. Height 10,500 feet	4 hours.	
27	Fri. 8/21	11:10 am	One of the largest eruptions to date. Entire crater active. Height 10,500 feet	1 hr. 40 min.	
28	Sat. 8/22	8:40 am	Heavy. Ash column shot up obliquely instead of vertically, as in all former eruptions. Altitude, 7,590 ft.		
29	Sat. 8/22	12:40 pm	Heavy. Entire crater active. Height, 5,940 ft.	1 hr. 20 min.	
30	Sat. 8/22	4:35 pm	Medium. Height, 6,000 ft.	55 min.	
31	Sun. 8/23	6:33 am	Medium. Height, 5,610 ft.	1 hr. 53 min.	
32	Sun. 8/23	7:43 pm	Larger than morning disturbance. Height, 5,940 ft.	Continued after dark.	
33	Sat. 9/5	12:23 pm	Medium. Full length crater active. Height, 5,600 ft.	4 hours.	605 x 208 ft. C. H. Lee's measurement.
34	Sat. 9/5	4:25 pm	Medium. Larger quantities ash than morning eruption. Height, 4,950 ft.	1 hr. 35 min.	



ERUPTION OF MT. LASSEN

Note beginning of same eruption shown on Plate cxxi

Photo copyright by B. F. Loomis



GROUSE VALLEY

Photo by Paul G. Redington

No.	Date		Time	Character of	Duration	Crater Size
35	Sun.	9/6	11:04 am	Medium. Entire crater active. Height 7,920 ft.	3 hr. 55 min.	Crater reported to have widened considerably in west end
36	Mon.	9/7	10:30 pm	Very heavy. Wind negligible. Column dust ascended to great height. Rumblings awakened lookout on Brokeoff Mt.	Continued indefinitely thru early morning hours.	
37	Tues.	9/8	8:00 am	Very slight. Began subsiding almost immediately after first outburst.	Had not reached normal when second eruption took place.	
38	Tues.	9/8	9:55 am	Medium. Began subsiding immediately after outburst.	Normal had not been reached when third eruption of day took place.	
39	Tues.	9/8	10:25 am	Medium. Slightly more ash thrown out than two preceding eruptions.	Normal not reached.	
40	Tues.	9/8	11:35 am	Heavy. Ash clouds enveloped mountain. Entire crater active.	1 hr. 50 min.	
41	Wed.	9/9	4:20 am	Medium.		
42	Wed.	9/9	3:00 pm	Considered one of largest eruptions to date. Heavy fall of ashes in Mineral and Lyonsville.	Continued after sundown.	
43	Wed.	9/16	3:00 pm	Mountain obscured by clouds. Only indication of eruption was fall of ashes at Viola.	Unknown.	Storm cleared on 18th, disclosing 3 new vents on west slope undoubtedly caused by eruption of 16th.
44	Sat.	9/19	3:10 am	Medium.	Short.	

No.	Date		Time	Character of	Duration	Crater Size
45	Sun.	9/20	3:00 am	Very heavy. Accompanied by terrific rumblings followed by heavy vibrations.	5 hours	No change noted in vents.
46	Sun.	9/20	11:35 am	Heavy. Rumblings and detonations heard at Mineral for first time. Ashes fell at Mineral.	3 hours	No change noted in vents.
47	Mon.	9/21	6:05 am	Probably most violent eruption to date. Ash practically obscured sky from Mineral viewpoint.		Vent nearest top on west slope considerably enlarged. Equal volumes of steam from both sides of mountain
48	Tues.	9/29	7:15 pm	Very heavy. Luminous bodies hurled high into air. Substantiated by Turner Mt. lookout and other eye-witnesses. Demolished lookout house.	Unknown.	Estimated length 900 ft. Considerably wider. Becoming more rounded with each eruption.
49	Wed.	9/30	10:00 pm	Heavy. Ashes fell at Hall's Flat.	3 hours.	
50	Thur.	10/1	5:15 am	Heavy.	1 hour.	
51	Thur.	10/1	7:00 am	Medium.	2 hours.	
52	Thur.	10/1	12:00 m	Medium.	1 hour.	
53	Wed.	10/7	6:20 am	Very heavy.	4 hours.	

(Signed) W. J. Rushing,
Forest Supervisor

Note.—To date there have been over seventy eruptions and one of the latest has been the most violent of all. The Editor

ADDRESS BY ALEXANDER MCADIE *

Members of the Appalachian Club and Guests:—

We stand here, looking down on the Atlantic, facing the East from whence cometh the Light. A thousand leagues west, another mountain club, climbing the hills of Contra Costa—the opposite coast—looks down on the Pacific, facing west, yet facing the East, the old East, from whence came the Light, from whence again we hope will come the kindling rays of truth, liberty and progress.

Between this near coast and that opposite coast, lies our country, a happy, prosperous people, sure of their destiny, confident of their mission and proud of their high calling among the nations of earth. And may it long be so, and neither conflict nor resort to arms again disturb this peace. Still, there are some who profess to see on the Pacific a stage with scenes being rapidly set for some of the most stirring acts in the drama of civilization. Be that as it may, there will undoubtedly be trade rivalries, business jealousies, racial antagonisms and antipathies; and so it becomes every nation, particularly the one that vaunteth itself superior, to study the problem well, to examine it from many viewpoints and especially from the vantage ground of exalted enlightenment, so that there be no mistakes, and no aftermath of regrettable consequences.

But some one may ask: "What has this to do with mountain climbing?" Simply this, that the mountaineer, by virtue of his high calling, by virtue of the effort made to rise above the commonplace and set things of life, is the very one who may best lead his fellows to greater heights of national morality. His, the far view, the wider horizon; his, the truer estimate of the motives and acts of men and nations. Standing on the high peaks of benevolence, tolerance and tranquility, he may point the road and indicate the way to those who dwell below; but who fain would breathe the purer air of heights serene. Having perchance trodden the trail of unselfishness, steep tho it be at times, he may beckon on some halting, hesitating climber. So much has been given to the mountaineer, surely much may be asked from him. The love of liberty has been always his; he must see that others have the same freedom to climb, freedom to think, freedom to rest. Remember, it was from the mountains that the Laws and Blessings came. From the rough range of Sinai, the Commandments; from the lower mount, the Sermon with the Beatitudes.

And this is the message from the leader of that Western mountain club: "Climb the mountains and get their good tidings. Nature's peace will flow into you as sunshine flows into trees. The winds will blow their own freshness into you, and the storms their energy, while cares will drop off like autumn leaves."

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*Delivered at meeting of the Appalachian Club at Blue Hill, March 14, 1914, under the leadership of Mr. T. H. Emerton.

And, again, in speaking of those noble trees, growing in stately splendor on the flanks of the Sierra, Mr. Muir says: "Standing erect, with no sign of strife, nor yet of rest; neither at war nor in alliance with the winds; too nobly unconsciously strong and calm, to strive with or bid defiance to anything."

Is not this a true description of the mountaineer? Noble the tree may be; but nobler still the lofty mind, the quiet heart of a man, serene and steadfast.

And if you go to that *contra* coast, pass not by the open door of the Sierra Club. The welcome of the mountains waits you; good cheer from men and women who have climbed, from those who love the mountains of California and who are better men and women for the privilege of that love.

GROUSE VALLEY TRAIL IMPROVEMENT

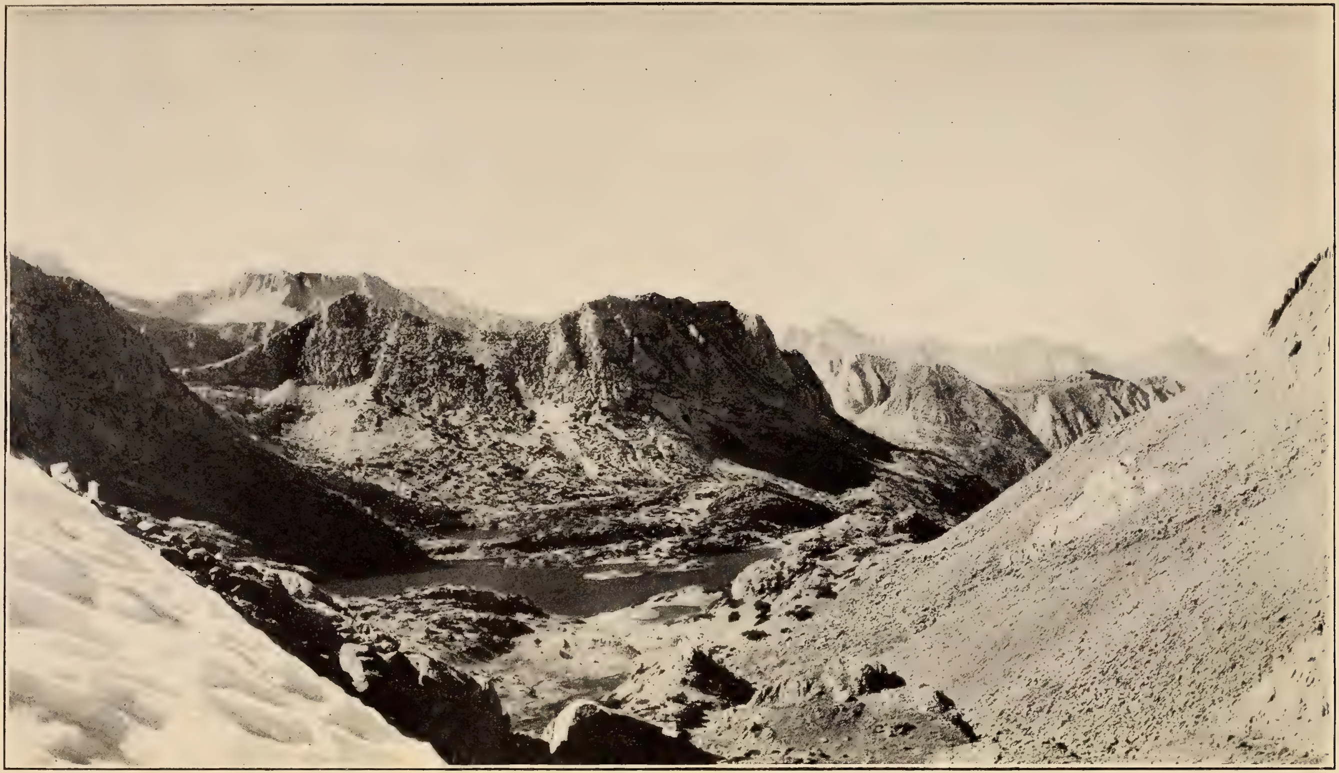
October 13, 1914

BOARD OF SUPERVISORS, FRESNO COUNTY,
Fresno, California

Gentlemen: I attach herewith a statement showing how the money allotted to this project was spent. The Sierra Club contribution of $250 was practically all spent early in the season for subsistence, supplies and transportation. Of the money allotted by Fresno County, only $226.84 has been vouchered to date, leaving a balance of $223.16 to be expended in the spring of 1915 when work starts. The Forest Service has spent the sum of $477.82.

Actual work on the trail from Cartridge Creek to Grouse Valley was not started until after July 1st, on account of high water in the Middle Fork of Kings River and its tributaries, particularly from Crown, Dougherty and Cartridge Creeks. The unusually high water incidentally ran the packing charge up higher than we had anticipated. However, a good start was made, and if sufficient funds are available next year, there will be no difficulty in completing the project. The mileage of trail to be constructed next year will probably not exceed two miles, but much of this will be heavy rock work and blasting and will cost much higher per mile than this year's figures show. We were able to get a good mileage this year by skipping a few cliffs where much blasting was necessary, and by doing pick-axe and crow-bar work and grading work in comparatively good country. The quality of the powder which was obtained was unfortunately not the best for the purpose of blasting in the kind of rock that was encountered, so we confined our work, as was stated, to easier ground, using the powder, however, to good effect in bull-dozing work. Next year we plan to pack our material and send our men in from Hume, avoiding thereby the chance for delay on account of high water in the Middle Fork.

I visited the project on August 18th, 19th and 20th, and was much pleased with the kind of trail which had been made under the imme-



NORTHWEST ALONG CREST OF SIERRA FROM BISHOP PASS—MT. HUMPHREY SHOWN ON SKY LINE AT RIGHT CENTER

Photo by W. L. Huber

LONG LAKE—BASIN OF SOUTH FORK OF BISHOP CREEK

Photo by W. L. Huber

diate direction of John Peyton of Sanger, California. The tread is wide and the trail, where complete, of good grade, absolutely safe for saddle horses and pack-animals. Of course, since the way traverses so much rocky country, it is bound to be a hard trail on animals, but in this respect it will be considerably better than the present trail from Tehipite to Simpson Meadow. Some seven days' time was spent by the trail crew in September (as they came out) on the trail from the mouth of Cartridge Creek to the Tehipite Valley, and the rangers report the dangerous places in that trail taken out and that it is now much improved over what the Supervisors of Fresno County encountered on their trip earlier in the season.

Our estimate of the cost of completion of the trail is $2,000. We shall not need tools to any extent, since we purchased adequate equipment this year and left it in a cache up above Cartridge Creek at the completion of this season's work. We shall, however, need much more powder next year, and the going will be slow, involving a larger labor charge than this year. I have made the estimate high in order to cover all contingencies of unusual weather, high transportation charge, heavy rock work, etc. If all the amount estimated is not used on this piece of trail, any balance remaining can very well be devoted to the improvement of the trail from Cartridge Creek down the river to Tehipite Valley. I expect to recommend that the Forest Service allot $500 to this project next year. I also expect to call upon the Sierra Club to help out, to a maximum of $500 if possible. I shall give myself the pleasure of asking this winter for the opportunity to appear before your board to request further assistance on this project, and to outline my plans for taking care of the stock of the travelers in the mountains through the establishment of a series of tourist or public pastures.

Approximately 4½ miles of trail were constructed, making the cost, aside from ranger supervision and the original laying out of the course to be taken, $211.84 per mile.

It will be but a few years before the general region in which this trail is located is visited by hundreds of travelers. I believe the money spent by the county and the Sierra Club in co-operation with the Service is exceedingly well spent, and I sincerely hope the project can be completed. Very truly yours,

PAUL G. REDINGTON,
Forest Supervisor

TRAIL NOTES

The completion of a trail from Simpson Meadow to Grouse Meadows will complete another and a very interesting trail across the Sierra. From Grouse Meadows a fair trail already exists up the Middle Fork of Kings River to Dusy Branch, then up the latter and finally to the left and over Bishop Pass to the head of the South Fork of Bishop Creek. (See Mt. Goddard Quadrangle of U. S. G. S.) Bishop Pass has an elevation of 11,989 feet, but yet is the only point at which animals can be readily taken over the crest of the Sierra between Piute Pass on the north and Taboose Pass on the south. In the early part of the summer it is often blocked by a snow cornice, but later in the season it can easily be crossed by pack animals. It has been used by cattlemen for a few years with varying success. From Bishop Pass a fairly well defined trail leads down on the Inyo side through a very beautiful and interesting chain of lakes to South Lake. South Lake is the reservoir of the Hillside Water Company and is operated in connection with a system of power plants farther down on Bishop Creek. Although the lake is at an elevation of almost ten thousand feet, a wagon road has been built to it from Owens Valley and is being maintained in connection with the operation of the reservoir.

The scenery in the upper portion of the basin of the South Fork of Bishop Creek is some of the finest I have seen in the Sierra. The view from Bishop Pass is especially fine. To the northwest the crest of the range is visible from this point as far as Mt. Humphreys. Parties crossing by this route will find the first regular settlement on the Inyo side at Andrews Camp five miles below South Lake. At this camp will be found fenced pastures, a store with fairly complete stock of camp equipment, and a pleasantly situated and well managed camp, which is open during all of the summer months and well into autumn, although it is at an elevation of 8,500 feet. W. L. Huber

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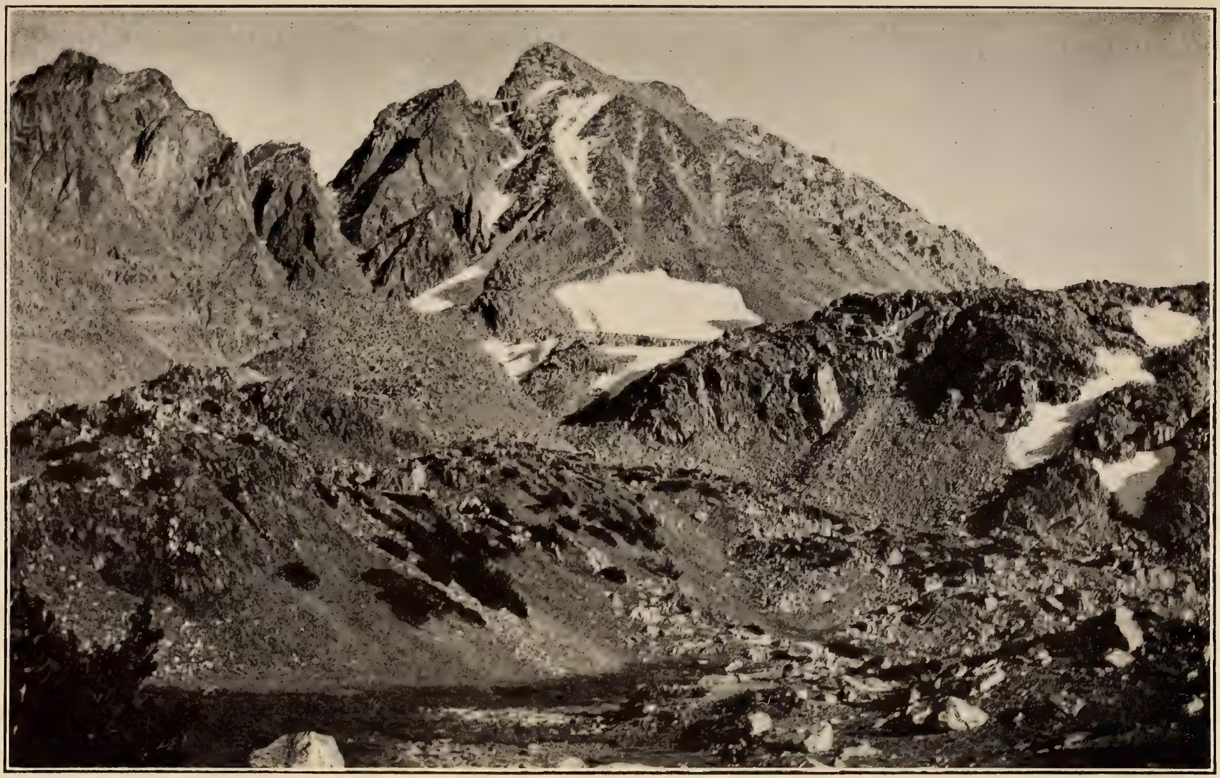
Fresno, California, December 10, 1914

Mr. William E. Colby,
Secretary, Sierra Club,
San Francisco, Cal.

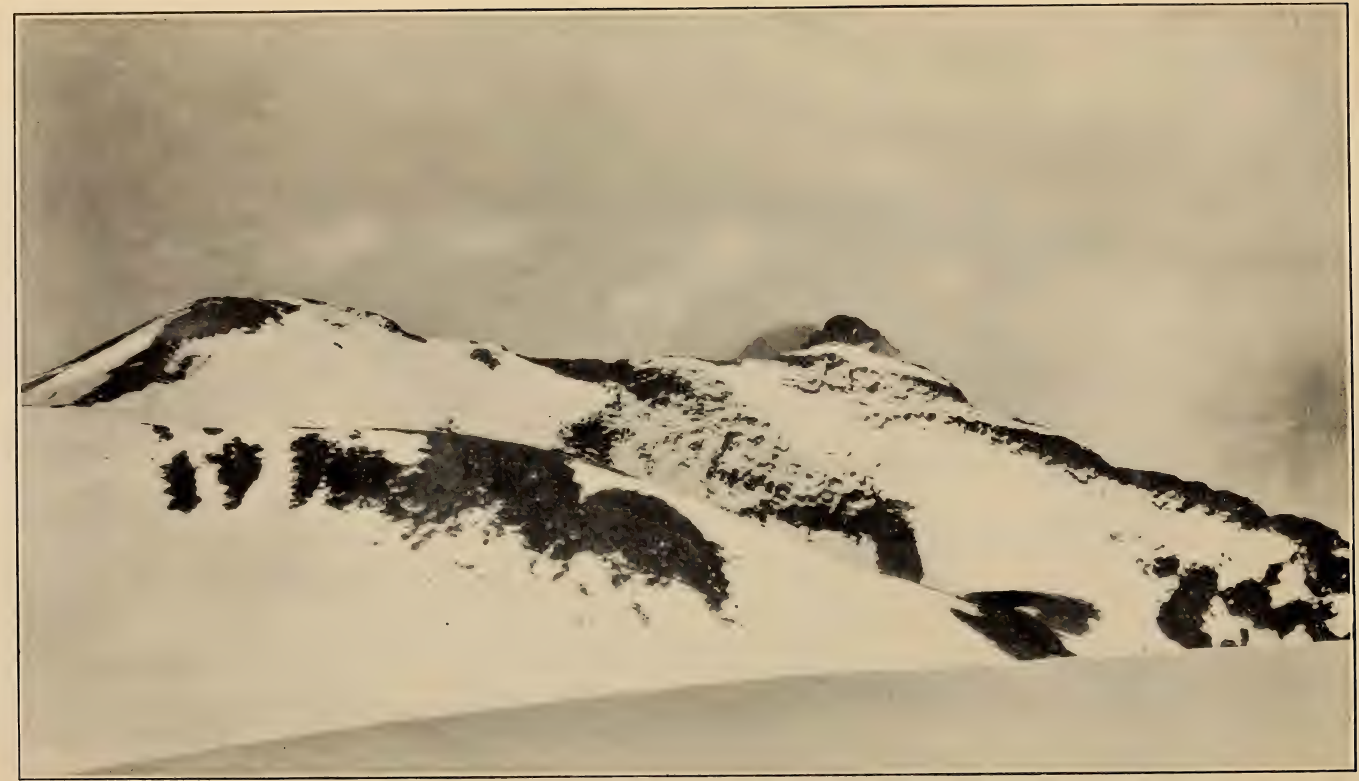
My dear Mr. Colby: I submit herewith a brief record of Golden trout plants during the summer of 1914.

In line with the fixed policy of the Fresno Division of the Fish and Game Commission, we undertook, during the past summer, to reach and stock the headwaters of the more important rivers in this division, using none but Golden trout. On July 1st, we put in the field six men and a well-equipped twenty-mule pack-train. In the course of our operations we extended the range of the Golden trout 125 miles northward. The waters selected for planting with Golden trout were naturally barren of fish life, although well adapted to the existence of fish; particularly the Golden trout. Cut off by falls, the other species of trout of the lower waters of these streams cannot ascend and mix with the Golden trout of the headwaters, and thus the Golden trout species will always be pure stock.

On July 18th, having been six days in gathering their load, Deputies Ellis, Smalley, Bullard and Brownlow, assisted by Walter Williams and Ray Ellis, left Whitney Meadows with fourteen mule loads



BISHOP PASS, 11,989 FEET, FROM INYO SIDE
Photo by W. L. Huber



SUMMIT PEAKS OF MT. OLYMPUS, THESSALY, GREECE, 9,794 FEET, APRIL 30, 1914

Photo by Francis P. Farquhar

(twenty-eight cans) of Golden trout, averaging six inches in length. The expedition was two days in reaching Lone Pine, four days in the Owens River Valley, where the temperature was 102 degrees; one day from Bishop to North Lake on Bishop Creek. At North Lake, Forest Supervisor Paul G. Redington and the writer met the expedition, and after resting the fish a day at North Lake we proceeded over Piute Pass, crossing on fifty feet of snow, and planted Piute Creek from its source to its junction with French Cañon Creek. We also stocked Desolation Lake, Muriel Lake, and an unnamed lake on the bench on the south side of Piute Creek. We then stocked French Cañon Creek for several miles above its junction with Piute Creek. On July 27th and 28th we stocked Heart Lake and the creek flowing through it, Marie Lake, and the headwaters of Bear Creek. The route was from the junction of Piute and French Cañon Creeks via Blaney Meadows and Seldon Pass. Ten cans of adult Golden trout were used in making the plants. At our junction camp the expedition was divided into two parts, Deputies Bullard and Brownlow going to Mammoth with half the pack train, while Deputy Ellis, with the rest of the party, returned to Whitney Meadows to pick up a second load of Golden trout.

On August 8th Deputy Ellis reached Lone Pine with sixteen cans of adult Golden trout, which he took by motor truck to Mammoth, where the load was delivered to Deputies Bullard and Brownlow and by them taken by mule train to Garnet Lake, Shadow Lake and the adjacent streams. Thousand Island Lake was not planted for the reason that another variety of trout was found to be already in those waters.

It had been our intention to deliver part of this consignment of Golden trout to the Yosemite National Park authorities at Thousand Island Lake, but the party from the park, which was to have met our pack-train, left the scene before our expedition arrived. We probably will not be able to supply the park authorities with a stock of Golden trout until those which we planted near the park line shall have become established.

Our whole field force was reassembled at Whitney Meadows by August 12th. Taking stock-fish from Rock Creek August 14th and 15th, we planted the unnamed lakes and creeks on the extreme headwaters of the Big Kern near Crag Ericcson and Mt. Genevra. These stock-fish were a magnificent lot, many of them being twelve to fourteen inches in length. Incidentally, this work completes the stocking, with Golden trout, of the eastern slope of the Kern River watershed clear to the sources of that stream. Returning to Whitney Meadows, we picked up twenty cans of adult Golden trout and on August 24th we started on the long pack for the Kaweah and Kings River watershed. Our route was via Kern Lakes, Coyote Pass, Farewell Gap, Mineral King, and the main Middle Fork of the Kaweah. We stocked Cliff Creek at Lone Tree Camp and the lake some two miles above that spot. This lake, sometimes called Tamarack Lake, we christened

Westerfeld Lake, in honor of the commissioner, Carl Westerfeld, who personally made the plant of Golden trout therein.

From Lone Tree Camp we took ten cans of fish via Elizabeth Pass, Roaring River, Rowell Meadow, Cedar Grove and Wildman's Meadow, and with these fish planted Kennedy Cañon Creek and some lakes on the northern slope of the divide between the South and Middle Forks of Kings River. Deputy Bullard, assisted by W. W. Williams, was detached from the main party and went to the Kings River Country with these fish. Incidentally, I would state that Deputy Bullard reports that in fording the South Fork of Kings River near Cedar Grove, he got a mule down in the stream and lost one can of Golden trout in the South Fork. They probably will be heard of later.

In conclusion, it is worthy of note that our pack-horse fish distribution work of 1914, in point of magnitude, distance traversed and difficulties overcome, was the biggest successful undertaking ever inaugurated in this country. Yours very truly,

A. D. Ferguson,
Assistant in charge Fresno Division

MAZAMA CLUB

The Mazama Outing of 1914 on the north side of Mt. Rainier was one of the most successful ever conducted by the Club. Permanent camp was made on the shores of Mystic Lake in Moraine Park, with Willis Wall and the Carbon and Winthrop glaciers in full view.

One hundred and twenty-eight persons registered, a most congenial company, including representatives from all the principal alpine clubs of America.

The climb of the mountain was a record-breaker. Seventy-five men and women lined up for the attempt, and of this number seventy-one reached the summit, the largest company ever assembled on the top of Mt. Rainier. The route from "Steamboat Prow" differed somewhat from that taken in former years, leading in a more direct line over Winthrop, instead of swinging out onto Emmons Glacier. This shortened the distance and the time, and the ascent from the "Prow" was made in from six and one-half to seven and one-half hours.

Numerous knapsack parties to neighboring points of interest and unusually interesting camp-fire entertainment made the outing one long to be remembered.

The club will make Mt. Shasta the scene of its outing in 1915, going in from Sisson to "Horse Camp" on the western slope of the mountain, early in July. The outing will probably include a trip to Crater Lake and transportation to the Panama-Pacific Exposition. Encampment being made on Sierra territory, a most cordial invitation is extended to members of the Sierra Club. and it is hoped that the Mazama Camp may have the privilege of offering its hospitality to a goodly number of California mountaineers. Louisa Almy
Financial Secretary

MOUNTAINEERS' CLUB

One hundred and fifteen mountaineers, including many visitors from Eastern States, enjoyed the Mountaineer Outing through the Glacier National Park in Montana, August 2-23, 1914. Starting from the eastern portal of the park, Glacier Park Station, the party traveled by trail almost the entire length and breadth of the park. Heavy storms prevented most of the mountain climbs that had been planned, but an interesting ascent of Mt. Siyeh (10,004 feet) was made. The famous lakes—Two Medicine, Upper St. Mary, Gunsight, McDermott, Iceberg, Avalanche, and Macdonald—which are perhaps the finest feature of the park, were all visited, as well as the more unfamiliar region near Waterton Lake. The trip was exceedingly interesting and successful.

Preliminary plans for the Mountaineer Outing of 1915 are under way. They contemplate making the entire circuit of Mt. Rainier (14,408 feet), a feat heretofore accomplished only by a few people and never by horses. The main climb will be to the top of the mountain, possibly by a new route. This will make an attractive trip to such mountain-climbers as are planning to visit the exposition at San Francisco. Write the secretary of the Mountaineers, 508 Pioneer Building, Seattle, Washington, for later information.

To the Editor of the Sierra Club Bulletin

Sir: The climb that Le Conte and Hutchinson had on the cliffs north of Grizzly, as related on pages 133-135 of the Sierra Club Bulletin for January, 1914, has more than a passing interest for one member at least of the Sierra Club. On the outing of 1909 the late Mr. Alexander G. Eells and I made the same trip with virtually the same experience, plus more of an approach to the tragic.

On the morning of July 5th, Mr. Eells and I decided to try for the saddle between Grizzly and Half Dome, with the purpose of making for a point on the side of Half Dome where a conveniently placed gulch would permit us to descend to a certain level whereby we could skirt the great cliff on the Tenaya side.

"Mr. Muir tells me that this route up to, and on the side of Half Dome is something exceptionally fine," said Mr. Eells. Mr. Muir, it is proper to state, had reached the saddle by another route than the one we faced, but we did not let that interfere with our plan. It looked feasible, and the pleasure of facing the unknown stimulated us to our task. It is one of those problems in climbing that look easy and prove difficult. As Mr. Le Conte says, "It is straight rock climbing all the way."

At one place where there was a chasm to jump across I incautiously trusted my weight to a bush that stood on the brink. Stubby and seemingly sound, it broke square off, and nothing but Mr. Eell's quick action prevented a tragedy then and there.

After much zigzagging we found ourselves close against the huge bulk of Grizzly facing a difficult situation—no way down but a calamitous one, no way up except through a small tunnel, a crevice or rift in the granite. The perilously steep angle of this aperture was further aggravated by the fact that it was in smooth rock, the floor of which was covered with a thin deposit of dry shifting sand. At the lower end was a narrow shelf whereon we stood, and below a sheer precipice.

Mr. Eells, with characteristic promptitude, got into this crevice and worked himself upward by a series of movements which represented approximately two slides backward for three movements forward. In due time I got in also, losing in the operation most of the contents of my shoulder bag. Mr. Eell's frantic squirmings stirred up the sand so that it got in my eyes, nose, mouth and hair. It was very exhausting work and at times our strength would leave us. Our only way to rest was to cling desperately to the encompassing walls of our tunnel by any and every friction hold, toes, heels, knees, elbows, back of the head, flat of the hands and clothing. To relax was to slide, and the end of the slide was the precipice. Finally Mr. Eells reached daylight and safety and I had the hole to myself. I got my head out and yelled in pure joy in my relief. But alas! My clothes had pulled up under my arms in such wise that I stuck. Dropping back I managed to straighten them, to find on a second trial that I was still too bulky, and to remove my Jersey sweater in the cramped quarters proved to be about the most bothersome job in my experience. But with the help of my crawl-mate I succeeded in reaching safety.

So far as I can remember, that crevice through which we crawled was about twenty, possibly thirty feet in length. We were over an hour in clearing it. Both of us were of slender build, a circumstance to be thankful for.

When Mr. Eells and I faced each other in the open air once more, he said, "You are one of the Eells family, too."

"Thank you kindly," I replied. "We are brothers all right."

The rest of our experience was about the same as that of Le Conte and Hutchinson, including the look over the 3,500-foot precipice. Like them also we found it a difficult matter to find a place to descend. The point we had aimed for to get into the Tenaya had been cut into a fearful toboggan slide by avalanches.

It is a fascinating region, this, near the Half Dome. I should like to go up there again some time—but not by way of that wormhole on the side of Grizzly.

Thos. J. Pilkington

AN ASCENT OF MT. OLYMPUS, THESSALY, GREECE

BY FRANCIS P. FARQUHAR

Those who were on the Kern River outing of 1912 will remember one of their companions, Aristides E. Phoutrides, a native of Ikaria, Greece, and a graduate of Harvard College. During that outing, and on a subsequent trip that several of us took through the Kings River country, he frequently remarked that many features of the California scenery recalled that of his native land. One night in the Kings River Cañon he proposed that our small group should reassemble in Greece and climb some of the classic mountains. At the time it seemed a very remote possibility, but during the winter of 1913-14, Phoutrides, then studying in Europe as a Traveling Fellow of Harvard University, repeated the invitation. Of those who comprised our original party, I was the only one who was able to go at that time. I had been planning a trip to Europe and arranged to join him in April.

We met at Patras, the principal western port of Greece, on the tenth of April. After a visit to Olympia, we went to Athens, whence on April 22nd we set out for Delphi and Mt. Parnassus to begin our walking trip.

After several days in the vicinity of Parnassus, we took the railroad from Chæronea north to Larissa in Thessaly. We visited the Vale of Tempe and then took council as to how to climb Mt. Olympus, whose snow-clad summits loomed before us. At Larissa we received little information and no encouragement from those with whom we talked. We were told that the snow was impassable and that the slopes were infested with wolves and were the strongholds of bandits. Nevertheless we decided to make the attempt, and after some debate as to the best means of approach we proceeded to Elassona, where we hoped to obtain better information. At Elassona the warning against snow was repeated, but the wolves dwindled into very rare and gun-shy beasts and the bandits vanished altogether. Here we learned of the monastery of Hagia T[illegible], or Holy Trinity, at Sparmos, close to the very heart of the mountain. We reached the monastery on foot the next day and were hospitably received by the monks.

On the following day, April 30, 1914, we climbed Mt. Olympus. Leaving the monastery at four-thirty o'clock in the morning, we followed up the ravine upon the side of which it is situated. After an hour and a half we climbed out on to a ridge that splits the ravine in two and, keeping on the crest of this ridge, at ten o'clock reach the summit of a snow-covered peak. By this time the clouds were rapidly shutting in upon us and we were in doubt whether the highest peaks were to our right or to our left. We finally decided that the northerly peaks, shown in the accompanying photograph, seemed the highest, and accordingly set out across the snow-fields in that direction. In about an hour and a half we attained the summit at the extreme left of the photograph. We now beheld one of the most magnificent sights of our lives. To the north and northwest the mountain breaks off sharply in stupendous precipices. Thousands of feet below we could see, through rifts in the clouds, the valleys and wooded hills of the ancient Pieria. The distant view was almost entirely obscured, but the splendor of the swirling mists about us, the tremendous chasms, the glittering snowfields, and the thronging peaks close at hand, were more than compensation.

We were uncertain at the time, and we are still in doubt, whether the summit that we attained was higher than the rocky peaks to the northeast, which are seen at the right of the photograph. At all events, the difference in altitude cannot be much more than a hundred feet. We followed along the ridge that forms the skyline of the picture to the point where it drops off abruptly to the right. Here a narrow knife-edge of treacherous snow runs out to the base of the huge rock towers. We made no attempt to pass this point as we had neither the time nor the strength. So without further exploration we turned back, and at one-thirty o'clock began our descent, scarcely less arduous than the upward journey, as we were obliged to travel rapidly in order to get down before night-fall. We reached the monastery of Hagia Trias at five-thirty o'clock and passed the night there.

In the morning we bade goodbye to the kind monks and made our way to the monastery of Hagios Antonios at Demirades. On the following days we continued our journey through a wild, rugged country, by way of the villages of Servia (or Selfidje), and Verria (the ancient Berea or Berrœa), to Salonica, arriving the fourth of May. From Salonica we took a Russian steamer, touching at Mt. Athos, where Phoutrides left me to continue his travels through Macedonia and Greece, while I proceeded to Constantinople and thence returned to the United States.

Although Mt. Olympus is perhaps the most widely celebrated mountain in all literature, it has rarely been visited and has never been thoroughly explored. Until the nineteenth century its height was generally supposed to be about 6,000 feet, an estimate that had stood since the time when it was reported by Plutarch to have been measured by Xenagoras. In 1831 Captain Copeland of the British Navy made a trigonometrical observation, establishing the height at 9,754 feet or 2,973 meters. This is the height given on current English charts. The maps of the Austrian Military Geographic Institute, edition of 1911, give the height as 2,985 meters or 9,794 feet.

That the high peaks were visited in former times is proved by scattered bricks and pieces of broken pottery that have been found upon them, but the first attempt at an ascent of which we have been able to find any record was by the English diplomatist, David Urquhart, in 1830. The French archæologist, Leon Heuzey, made two ascents to the region of the high peaks in 1856; he was followed in 1862 by Dr. Heinrich Barth, best known for his explorations in Northern Africa; in 1865 the Rev. Henry Fanshawe Tozer climbed one of the high peaks; there is mention in a French guide book of an ascent in 1869 by a

M. Gorceix of the French School at Athens, but of this we can find no further record. Urquhart, Barth, and Tozer all report seeing higher peaks beyond any that they attained, while Heuzey's account is confused and by no means proves that he was on the highest peak or even knew which was the highest.

There may have been ascents since 1869, but so far we have not been able to discover a trace of any until the unsuccessful attempts of Engineer Edwart Richter of Jena, Germany, in 1909, 1910, and 1911, the last of which ended in his capture by bandits. This episode created a great stir in Germany, comparable to the case of Miss Stone of a few years previous. As a result of the Balkan wars of 1912-13, the region in which Mt. Olympus is situated became a part of the Kingdom of Greece, after being for some five centuries under the Ottoman Empire. During the Turkish domination Olympus was one of the principal strongholds of the Klephtes, or Greek bandits, but with the advent of the Greek government the region is now considered safe.

Although we are perhaps no surer than our predecessors that we have been on the very highest summit of Mt. Olympus, we were unquestionably on one of the highest peaks. The swirling clouds that obscured now one point, now another, prevented us from determining the matter beyond doubt. Perhaps the most important result of our expedition, aside from the series of photographs that we obtained, was to establish what must prove to be the most direct and practicable route to the summit crests. Of our predecessors, Urquhart alone started from the same base, and it is apparent from his narrative that he kept too far to the east after leaving the monastery.

All of the accounts included in the following bibliography make interesting reading and deserve to be better known.

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NATIONAL PARKS

The matter of an exchange in which the Government is to give park lands and timber and lands in the Sierra National Forest for lands and timber in the park owned by the Yosemite Lumber Co., exchange values in each case to be equal, is now under consideration.

The Act of Congress approved May 13, 1914, (Public, No. 99), for the purpose of preserving scenic features and consolidating certain forest lands belonging to the United States within the Sierra National Forest and the Yosemite National Park, California, authorizes the Secretary of the Interior, on the recommendation of the Secretary of Agriculture, "and after obtaining and accepting for the Government of the United States a valid title to the land to be acquired, which title shall be approved by the Secretary of the Interior, to exchange lands belonging to the United States within the Sierra National Forest for privately owned timber lands of approximately equal area lying within the boundaries of said national forest and the Yosemite National Park."

The act also provides that upon the completion of the transaction the lands acquired by the Government within the Sierra National Forest shall become a part of the park. Under this exchange, if consummated, there will be about 160 acres added to the park.

Under the Act of June 6, 1900, the Secretary of War has, on request of this department, detailed troops, during the summer months, to the Yosemite, Sequoia and General Grant National Parks for protective purposes therein. The expense to the War Department in maintaining these details was considerable, and the expenditures from the park revenues resulting from their presence in the park were large; furthermore, the conditions in and around these reservations which led to the authorization of the use of the military force in these parks having radically changed, the conclusion was reached that their presence was no longer required in the Yosemite, Sequoia and General Grant National Parks, and the Secretary of War was so advised. During the past year, therefore, troops have no longer been employed in these reservations and have been superseded by civilian rangers, bringing the latter in closer touch with the actual work of the park management than was formerly practicable when troops were only in the reservations for a few months.

In the Yellowstone National Park the hotel at Mammoth Hot Springs has been reconstructed, additions have been made to the Old Faithful Hotel, the pavilions for housing and caring for people at the permanent camps materially improved, and a 20-per-cent reduction in the transportation rates from the western entrance of the park has been secured without any deterioration of the character of the service rendered. In the Yosemite National Park a contract is under consideration under which new hotel and camps will be provided for the accommodation of tourists in the Yosemite Valley and in the other parks material improvements have been made in the permanent camps and other services.

One new monument, the Papago Saguaro, was created during the fiscal year. It embraces approximately 2,050 acres of rocky and desert land in Maricopa County, Arizona. Within the tract is found a splendid collection of characteristic desert flora, including many striking examples of giant cactus and other interesting species of cacti, as well as fine examples of the yucca palm. Within the tract historic pictographs may be found upon the faces of the rocks, adding to the interest of the reservation ethnologically and archæologically.

The supervision of these various monuments has, in the absence of any specific appropriation for their protection and improvement, necessarily been intrusted to the field officers of the department having charge of the territory in which the several monuments are located.

As stated in the last annual report, the administrative conditions continue to be unsatisfactory, since no appropriation of funds has yet been made available for this important, protective, and preservative work. Such supervision as has been possible in the cases of a few monuments only has been wholly inadequate and has not prevented vandalism, unauthorized exploitation or spoiliation of relics found in those prehistoric ruins, whose preservation is contemplated by the passage of the Act of June 8, 1906. An estimate in the sum of $5,000 for protection of these monuments was submitted last year, but no appropriation was made, and a similar estimate will again be submitted to Congress, not so much for the purpose of preserving by restoration the objects reserved in the national monuments as to prevent the removal of valuable relics and vandalism. Monuments suffering from these causes should be provided with a custodian or superintendent, and in this way a small general appropriation can be made most useful and its expenditure will be wholly in the interest of the public. The protection and preservation of the national monuments as public reservations are of great interest and importance because a great variety of objects, historic, prehistoric, and scientific in character, are thus preserved for public use intact, instead of being exploited by private individuals for gain and their treasures scattered. These reserves should be administered in connection with the national parks, which they strongly resemble. It would be difficult to define one in terms that would exclude the other. The renewal of the estimate for a small appropriation has been made for the purpose of keeping this class of reserves intact until such time as Congress shall authorize the creation of some administrative unit which shall take over both the parks and monuments and administer them under a general appropriation.—*From the Report of the Secretary of the Interior*

YOSEMITE NATIONAL PARK

Patented Lands—Attention is invited to the recommendations of my predecessors to the effect that the title to all patented lands within the park be extinguished. I am in hearty agreement with these recommendations. The Yosemite Lumber Co. is now constructing a logging railroad into the park for the purpose of taking timber from their lands near Chinquapin and which are adjacent to the Wawona Road. This destruction of beautiful forests in one of the most prominent parts of the park should be prevented. A summer resort and town, known as Foresta, has been maintained on patented lands within the park during the last two seasons. A tract of patented land on the Big Oak Flat Road at a place known as Gentrys has been subdivided into lots with the purpose of establishing a town and summer resort. It is rumored that other owners of patented lands contemplate the establishment of camps for the accommodation of tourists, thereby having all the advantages afforded by the Government's administration without paying anything toward the maintenance of the park, as is required of all concessioners on the public lands.

Sanitation—The sanitation of the valley is, of necessity, cared for by primitive methods, which are defective. As a protection to the health of the people in the Yosemite Valley and to the people of the San Joaquin Valley dependent on the Merced River for a water supply, steps should be taken at once to design and install a complete sewage system and disposal plant in the Yosemite Valley.

Water Supply System—During the last four years work has been done on the water supply system of the Yosemite Valley as funds were available until the work is now nearing completion. All of the principal points excepting Kenneyville are now provided with water from water mains of adequate capacity to afford fire protection. In the future such extensions can be made from the present system as the needs of the service may require.

Electric Light and Power—There has been a marked increase in the use of electricity for power purposes and the time is nearing when the present plant will not be able to supply the demand. This increase in the use of electric power means an increase in the park revenues, the same being sold to the concessioners, and should be encouraged. The existing plant should be enlarged to over double its present capacity.

Mirror Lake—I wish to emphasize the recommendations of my predecessors in regard to the removing of a deposit of sand from Mirror Lake. This lake has been one of the wonders of the place, giving a reflection of mountain scenery of unusual beauty, and its reputation has gone far and wide. Tenaya Creek, which passes through the lake, has carried down from the mountains and deposited in the lake such a quantity of sand that the size of the lake has been reduced to a mere pond during low water. Funds should be provided for dredging out this sand.

Big Trees—The work of clearing the Mariposa, Tuolumne, and Merced Big Tree Groves of underbrush and dead timber has been carried

on during this season, and should be continued next season. It has for its purpose the making of the groves more sightly and protecting the same against forest fires. (Signed) Mark Daniels,
Acting Superintendent Yosemite National Park

SEQUOIA AND GENERAL GRANT NATIONAL PARKS

The following improvement work was accomplished in the Sequoia and General Grant National Parks during the spring of 1914:

Sequoia Park—Twenty-two miles of the Giant Forest Road were graded; many additional passing points for vehicles were constructed and new retaining walls put in; objectionable rocks and brush were cleared from the right of way. Fifty-three miles of the South Fork Trail and intersecting trails have been repaired and are in excellent condition. Thirty-three miles of South Fork telephone line have been repaired in good condition. A new road 6,700 feet in length has been built between the Giant Forest-Moro Rock junction and ranger station at Camp Sierra. Mr. Walter E. Kenney, who conducts the tourist camp at Camp Sierra, erected a very neat and commodious hotel building on Government land at the camp.

During the course of the season it became necessary to change the location of a portion of the tourist camp at Camp Sierra in order to avoid longer camping on private holdings. The result of this change necessitated the clearing of thirty acres additional camp ground in order to provide sufficient space for the park visitors. The work of clearing this ground is now progressing very favorably and will be completed by the close of the season.

The work of constructing a 3,000-foot road as driveway around outer border and through the tourist camp at Camp Sierra is nigh completed. This road, when completed, will be the means of furnishing a beautiful drive circuit around and through the camp, and will enable park visitors to drive direct to the various camp sites desired.

For two years last past the water supply that furnishes the Camp Sierra tourist camp has gradually diminished, and much of the supply is below the camp. A pipe system is now being laid that will bring water from Sherman Creek to the camp; thus a bountiful supply of good pure mountain water is assured.

The location survey and cross-sectioning thereof of the Giant Forest Road extension between terminus at Wolverton Reservoir and north boundary of the park, some seven miles in length, will be completed by the close of the season.

General Grant Park—The roads, trails and fences have all been repaired. A new road one-fourth mile in length has been built which forms a connecting link between the Stephens Grade Road in the park and the new Sand Creek Road recently built to the south park boundary. The building of these roads will be the means of bringing practically all traffic thereover to the park in the future, as it somewhat shortens distances between valley towns, and the road throughout is among the very best in the State.

The work of fencing the tourist camp-ground is now under progress and will be completed by the close of the season.

(Signed) Walter Fry,
Superintendent Sequoia and General Grant National Parks

CRATER LAKE NATIONAL PARK

Game Protection—But two temporary rangers are allowed during the season, one of whom is constantly employed in issuing licenses and registering visitors, so that one man must patrol the entire park. Then is it strange that there is always a report current that deer are slaughtered by poachers, who only need keep track of the ranger to carry on their nefarious practices? However, hunting in the park is not general by any means, and is only carried on by an irresponsible class of semi-criminals. Because of the protection afforded, deer in the park become very tame during the summer and when driven to the lower levels by the first heavy snow, fall an easy prey to the despised deer skinners.

If the department will allow five additional rangers, three of them will be needed for issuing automobile licenses and registering visitors at park entrances; one will be detailed for clerical work at headquarters, and three will be used to patrol the park. Of the latter, one should be stationed at the Medford entrance to patrol north of the Medford Road and west of the lake; one at the Pinnacles entrance to patrol the eastern side of the park, and one at headquarters to patrol the southern portion, together with that portion of the rim in the vicinity of Crater Lake Lodge. By this arrangement fairly good patrol of the park can be maintained and deer hunters held in check. Besides this the danger of forest fires would be materially reduced and the work of park administration greatly improved.

Patented Lands—There are approximately 1,200 acres of private land within the park, all of which is held for speculation. It is covered with excellent timber, and it is only a question of time when some speculator or millman will gather it up; then the next move will be to cut off the trees and leave it as "logged-off land" is usually left—covered with kindlings but denuded of trees.

Early action should be taken to extinguish these titles, either by the ordinary method of condemnation and purchase or by offering therefor other lands located outside of the park.

(Signed) Will G. Steele,
Superintendent Crater Lake National Park

MOUNT RAINIER NATIONAL PARK

The park trail system has a total length of 120 miles. Under allotment of funds appropriated by the sundry civil act of August 1, 1914, large forces of workmen are now engaged in an effort to connect the north side trails with the south side trails on the east and west ends thereof. The completion of this work is wholly dependent upon weather conditions, but if successfully prosecuted, as is hoped, these trails will bring the mileage up to 150, and a particularly noteworthy feature is that a trunk line of trail will have been thrown around the park territory, making mountain encircling trips by tourists and park officers easier of accomplishment. The ultimate aim is to build branch trails from this trunk line, which is kept at the lowest practicable altitude, to the points of interest in the higher altitudes. The Forest Service of the Department of Agriculture is co-operating in this encircling trail system by providing labor to build such parts of the trail as are necessarily outside the park boundary. The park trails are well located with regard to game and fire patrol as well as for convenience and comfort of tourists. (Signed) Ethan Allen,

Superintendent Mt. Rainier National Park

GLACIER NATIONAL PARK

Going to the Sun Camp—A new dormitory, 28 by 96 feet, has been constructed at this camp.

Many Glacier Camp—There is now under construction a large hotel building, also a large dormitory building.

Granite Park Camp—Plans are about completed and work under way for the construction of a camp for the accommodation of tourists next season.

Glacier Hotel—John E. Lewis has completed a sixty-five-room hotel on his patented land near the head of Lake McDonald.

Roads and Trails—I most emphatically recommend that the McDonald and Waterton Lakes Road be constructed. This road would run almost through the center of the park, affording wagon or automobile transportation to points of scenic interest which could be easily reached by saddle-horse transportation over trails, and later could be connected with the east-side roads through Swift Current Pass. The Waterton Lake Road could also be connected up with the Flathead River Road through Browns Pass, going either by Kintla or Bowman Lake. The building of the Fish Creek Road and the improvement of the North Fork Road, as asked for in the estimates for the fiscal year ending June 30, 1916, will connect up this system of roads and open up a large new section of splendid scenic beauty. (Signed) S. F. Ralston,

Supervisor Glacier National Park

MESA VERDE NATIONAL PARK

During the past year there have been no repairs to the ruins other than the work done by the rangers in making new trails, repairing old ones, strengthening the ladders and building, and raising one long ladder to reach the Inaccessible Ruin, located in Navajo Cañon, below Peabody House. Nothing of value was found in this house when reached, as many years ago one of the early explorers in this region had been lowered from the cliff above, as an autograph in the ruin testifies.

(Signed) Thos. Rickner,

Superintendent Mesa Verde National Park

FORESTRY NOTES

EDITED BY WALTER L. HUBER

THE FOREST FIRE SEASON OF 1914 IN CALIFORNIA

By COERT DU BOIS, District Forester, District 5

The forest fire season of 1914 in California was the most severe in the history of the Forest Service in this district. The season was much longer than usual, nearly double the normal number of fires started, and the conditions of wind and temperature were such as to make fire suppression at times extremely difficult.

Under the circumstances, we are congratulating ourselves that we succeeded in holding so large a percentage of our fires to so small an area. Seven hundred and fifty-two fires were put out before they had burned one-fourth of an acre; 448 reached an average size of 7.5 acres, while 268—or 18 per cent of the total—got away, and burned 44,463 acres. The total acreage burned was 53,763 acres, of which 42,464 acres was brush. The total damage to Government timber did not exceed $90,000.

California has a regularly recurring dry season normally lasting 122 days, from June 1st to September 30th. The winter snows and rains affect the fire season principally by the amount of inflammable grass and weeds they produce. This growth dried early in the summer of 1914, and by July 1st the Supervisor of the Sierra Forest reported that the whole foothill and lower yellow pine belt was like tinder. "A match dropped in this growth," he said, "would start a fire which the man who dropped the match could not stop." The same conditions were particularly noticeable in Southern California, and in Modoc County, in the northern part of the State, all vegetation started growing five weeks earlier than in the normal season.

The season was closed in the fall by rains which covered Northern California and the Sierra region October 5th, while south of the Tehachapi it has not yet closed.

The normal summer afternoon temperature in the mountains averages around 90 degrees. August is the dangerous month. If summer temperatures for June and July are normal and August is unusually hot and dry, an emergency exists.

Hot wave forecasts for the whole State north of Tehachapi Pass were given the San Francisco office of the Forest Service by the local U. S. Weather Bureau forecaster on August 1st, August 4th, August 17th, and September 12th.

Nothing can be done with a bad fire in the heavy brush of the lower elevations of the national forests in the daytime. The technic of fighting them provides that the first day is taken up with assembling the fighting force and making all preparations for a direct attack on the flames as soon as the wind and heat die down the first night—usually about 6 p. m. It is very seldom that any fire in a normal season is not corralled the first night. A study of the minimum temperature records at Sisson (Shasta National Forest) shows that from August 1st to 15th, while the Sisson fire and six other bad fires were burning in Northern California, the night temperature averaged *seven degrees higher* than those for the same period in 1910—our worst previous year. The fact that the nights were warm enough to allow fires to burn fiercely all night was the very worst feature of the 1914 emergency and was the reason for the continued spread of the Sisson fire for five days in spite of the fight against it.

Under these circumstances, a great many fires outside but near the forests that in a normal year would be left to chance or to the unorganized efforts of local residents, had to be attacked as promptly and as decisively as possible by the Forest Service organization. To have done otherwise would have meant a repetition of the disaster of 1910.

NUMBER OF FIRES AND CAUSES

The following table shows the number and causes of the fires in District 5 from January 1st to October 15th.

The records by ten-day periods show that August 11th to 20th was the frequency peak of the season, when fires occurred at the rate of seventeen per day; the normal for this period being thirteen per day. A comparison of the number of fires this season from each cause, with the normal number as established by averages from 1908 to 1913, is interesting:

	Normal for District			During 1914 Season		
Number lightning fires		274			480	
Per cent of total			34%			33%
Number caused by human agency		524			988	
Per cent of total			66%			67%
Railroads	38			70		
Brush-burning	39			45		
Campers	109			340		
Incendiaries	66			212		
Sawmills	19			69		
Unknown	170			141		
Miscellaneous	83			111		
Total	798			1,468		

A large number of fires starting is in itself serious, but what is even more serious is where and how they start. During August, a vicious incendiary outbreak occurred on two ranger districts of the California Forest. This element, which set upwards of thirty fires, invariably selected the hottest part of the day and the most inflammable type of country. On Goat Mountain, a brushy hill in the Sierra National Forest, the Shuteye Lookout Station spotted a string of six fires set within fifteen minutes on a hot August afternoon. In all, 212 incendiary fires occurred in the district.

Summer travel in the mountains has vastly increased in the last two years, because of road improvement and the greatly extended use of the automobile for camping trips. The Supervisor of the Stanislaus Forest reports that owing to increased travel the fire risk in certain parts of his forest was fully ten times greater than any previous year.

DAMAGE DONE

The total money damage done United States timber was very light, comparatively and actually. It did not exceed $90,000. The damage to property in private ownership within the national forests was something over $70,000. One lumber company operating on private lands within the Stanislaus Forest lost in a single fire, caused by the carelessness of its own employees, timber and bridges, machinery and buildings, valued at $65,000. In 1910 the total money damage from the forest fires was slightly more than $500,000.

THREATENED DAMAGE

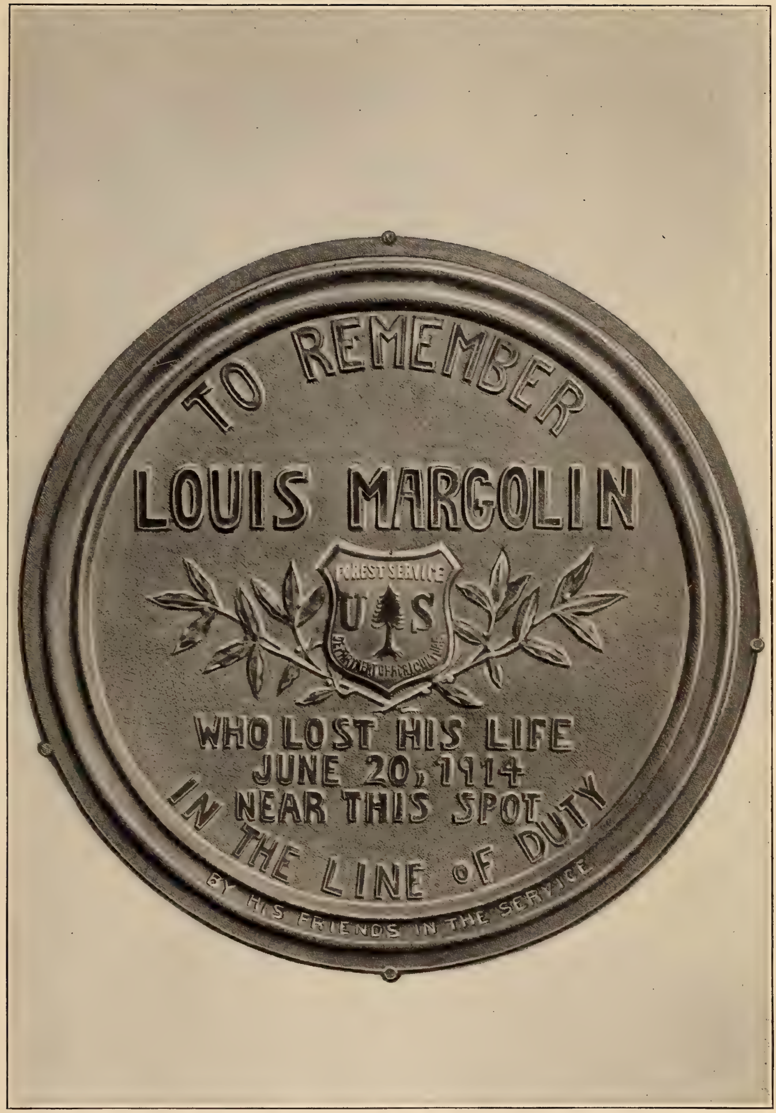
The threatened damage to forest resources totals $3,013,000—and to property, Government and private, $1,820,000; a grand total of $4,833,000.

COST

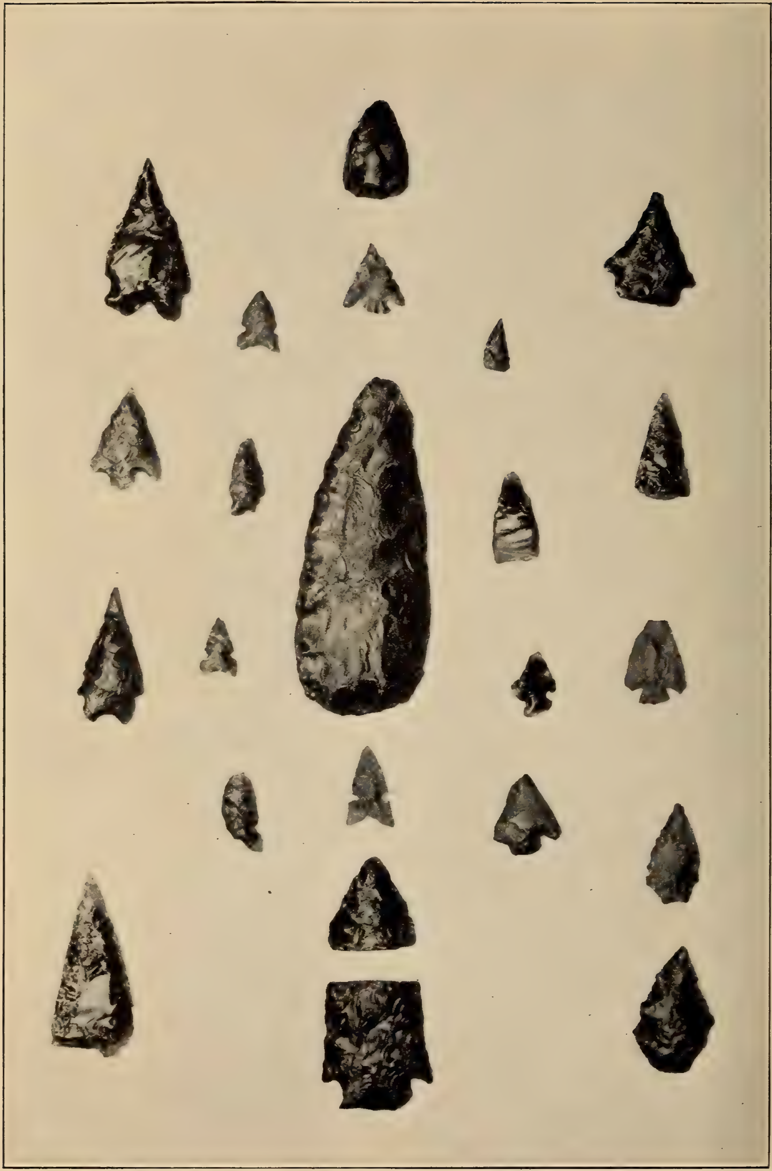
Figuring the total cost for both the standing and fighting organization ($309,830), against the value of United States property they are maintained to protect ($165,000,000 worth of standing timber), it amounts to an insurance rate of eighteen cents on the hundred dollars; and against the total values in public and private property actually saved ($4,833,000), to $6.25 on the hundred dollars during a season which created a war risk.

The policy of fire-fighting is dictated by the values at stake. The size of the organization and the speed with which it was moved (or the expense), was increased when large timber values were immediately threatened and a short, decisive fight was necessary.

The Standard Lumber Company fire, on the Stanislaus Forest, started at noon on September 11th. It jumped to the tops and started up-country before a heavy wind toward an enormously valuable body of Government timber. The Forest Supervisor assembled 155 men from Columbia, Tuolumne, Angels Camp, Jamestown, Sonora, and Murphys by automobile, covering distances of eight to fifty-six miles, and started line construction by 5 p. m. The fire was held by midnight, after 1640 acres of company land and 280 acres of Government timber had burned over, at a cost to the Service of $3,002. The Government's loss was $2,960, while timber directly in the path of the fire worth $200,000 was saved.


TO REMEMBER
LOUIS MARGOLIN
FOREST SERVICE
U S
DEPARTMENT OF AGRICULTURE
WHO LOST HIS LIFE
JUNE 20, 1914
NEAR THIS SPOT
IN THE LINE OF DUTY
BY HIS FRIENDS IN THE SERVICE

This bronze tablet, in memory of Louis Margolin, was placed on a large rock on the bank of Dinkey Creek near Ross Crossing in the Sierra National Forest by his associates in the Forest Service. Mr. Margolin was a forester of marked ability, and at the time of his death had charge of timber reconnaissance in the National Forests of California. It is probable that he was drowned in trying to cross Dinkey Creek during a violent storm.



INDIAN ARROW HEADS.
Reduced to one-half actual size. Found in Tuolumne Meadows by T. H. d'Estrella, 1914

Fires in the brush belt adjacent to the timber were fought from the point of view of saving the timber. In many cases they were suffered to cover considerable area rather than incur a heavy fighting expense. On August 1st a fire started in the brush belt near the Sierra Forest boundary. Its course was carefully watched, but not until the afternoon of August 2nd, when it started up the south side of San Joaquin Cañon, did the Supervisor decide that it threatened Government timber. It was then fought from the most advantageous points with three small crews of twelve to fifteen men, and put under final control the night of August 3rd, after covering 9,560 acres. The fight cost the Service $953.

FOREST BADGES FOR BOY SCOUTS United States District Forester Coert DuBois has just received from the maker a supply of badges which are to be given to the Boy Scouts who qualify next summer as National Forest Aides. To become eligible to receive a badge, the Scout is required to spend at least ten days on a national forest performing useful service during the fire season under the direction of Federal forest officers. At the end of this period he has to pass an examination in elementary forestry.

The first Scout to receive the badge was a Mill Valley boy who worked on the Tahoe Forest last summer under Forest Supervisor R. L. P. Bigelow. He performed with credit the duties assigned to him, being specially complimented by Bigelow for his conduct at the Crystal Peak fire, and passed the examination with a fair rating.

The badge is of bronze, with the Forest Service pine tree in relief encircled by the words "National Forest Aide." The District Forester expects that a number of them will be earned by the Boy Scouts next season.

San Francisco, Oct. 17, 1914

Mr. T. H. D'ESTRELLA,
Institute for Deaf and Blind,
Berkeley, Cal.

Dear Mr. d'Estrella: On behalf of the SIERRA CLUB, I wish to thank you most sincerely for your generous gift of arrow-heads found in Tuolumne Meadows. We appreciate this gift very deeply and will place these on exhibition in the Club Room in the near future. We trust this will form the nucleus of what will eventually be a large collection of such relics from this general region.

With very best of good wishes, I remain,

Very sincerely yours,
WM. E. COLBY

BOOK REVIEWS

Edited by Marion Randall Parsons

"The Ascent of Denali"[*] Very modestly does Mr. Hudson Stuck narrate the incidents which led to the successful ascent of Denali, 20,700 feet high. This mountain is perhaps better known as Mt. McKinley, though the author begins and ends the book with a plea for the Alaskan Indian name. Mr. Stuck's route, from the northeast, followed closely that of several earlier climbing parties, to all of whom he gives due credit. His great advantage over the Parker-Browne expedition, so nearly successful the previous year, lay in his approach from the north, which enabled him to transport his supplies by boat to a point within fifty miles of the base of the mountain. Nevertheless, Mr. Stuck's achievement in conquering this peak cannot be measured by the ordinary standards of mountaineering. For aside from the difficulties of the climb itself, one must take into consideration the remoteness of the mountain in its sea of ice and snow; the size of the packs the men carried, including heavy instruments, besides food, bedding and fuel; the sleeping for fifty nights on snow and ice—four men in a 7 A-tent warmed by a coal-oil stove; and the intense cold, so cold that sometimes a camera could not be loaded for fear of losing a hand. The view from the summit is made to appeal to us as marvelously impressive. That the writer does not climb mountains solely for the sake of adding trophies to his record is shown by the sense of "awe, of reverence, and worshipful uplift" which he makes us feel; and his whole-hearted tribute to the three companions who shared in the hardship and glory of the ascent is but one instance of the generosity and manliness which is the keynote of this delightful book. L. M. R.

"Ten Thousand Miles with a Dog Sled"[†] In this earlier written but later published work of Archdeacon Stuck may be read the secret of his successful ascent of the mountain that has defied so many attempts; for the long winter journeys between the missions of the Alaska interior gave him a wide and varied experience with the wintry conditions which, rather than the actual mountaineering difficulties, so long kept "Denali" unconquered. The book is a chronicle of journeys with a dog sled that covered almost incredible distances and were pursued under conditions that most of us cannot realize—traveling sometimes forty miles in a day with a temperature of 60° below zero. Mr. Stuck brings the beauty of the icy wilderness and his keen delight in these arctic days and nights very clearly before us. His journeys extended across the whole Alaska Peninsula from the Canadian line to Kotzebue Sound, across the Seward Peninsula, and along the greater part of the length of the Yukon and the Tanana Rivers, and included also extensive trips through almost uninhabited regions far to the north and south of the Yukon. In spite of a similarity of conditions in the various trips, the interest is remarkably well sustained throughout. The mission work is but lightly touched upon, but one feels the sympathy and understanding of the natives that prompts his endeavor to help them to become "an Indian race that shall be a better Indian race and not an imitation white race." The book is manly, straightforward, and generous in spirit, and after reading it one rejoices the more that this unselfish life of hardship and service was crowned by an achievement that will make Hudson Stuck's name long remembered among mountaineers. M. R. P.

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[*] *The Ascent of Denali.* By Hudson Stuck, D. D., Archdeacon of the Yukon. Chas. Scribner's Sons, New York, 1914. Illustrated. 188 pages. Price, $1.50 net.

[†] *Ten Thousand Miles With a Dog Sled.* By Hudson Stuck, D. D., F. R. G. S. Chas. Scribner's Sons, New York, 1914. 420 pages. Illustrated. Price, $3.50 net.

"THE CONQUEST OF MOUNT MCKINLEY"* The story of the three attempts made by Professor Herschel C. Parker and Mr. Belmore Browne to reach the summit of Mount McKinley, the highest mountain in North America, is of absorbing interest to mountaineers. It may be remembered that Professor Parker and Mr. Browne were with Dr. F. A. Cook on the occasion of his second attempt to climb McKinley, in 1906, and that after their return to the coast Dr. Cook claimed to have reached the summit. The Parker-Browne expedition of 1910 was undertaken primarily to prove the worth of Dr. Cook's claim, disbelieved by them from the outset, as their knowledge of the country satisfied them that no "dash to the summit" could possibly have been made in the short time at Dr. Cook's disposal. They were successful in this part of their venture, securing photographs that disproved Dr. Cook's story, but their ascent of McKinley was blocked at an altitude of 10,300 feet. These attempts, both undertaken from the south, were followed by the still more arduous expedition of 1912, when, starting again from the south, they crossed the Alaskan Range and made their attack on the summit from the northeast. It was an heroic undertaking, involving the relaying of all their provisions and outfits by dog sled across the unknown range and up to an altitude of 11,000 feet, and thence back-packing to the camp at 16,615 feet, from which the final attempts were made. While contributing greatly to the knowledge of the country, and being in itself a noteworthy achievement, this laborious route across the Alaskan Range cost them their ultimate success. Within only three or four hundred feet of the summit they were driven back by heavy storms. Their long fight with the icy wilderness had taken the best of their strength; their stomachs revolted at the pemmican, their most important article of diet, and for lack of food they were compelled to return after two storm-defeated attempts on the final snow slope. The title of the book might justly be criticized, for even though the main difficulties of the climb were triumphantly overcome and the way lay clear to the summit, no mountain is "conquered" until its summit has actually been reached. As Mr. Browne touches clearly and honestly upon this very point in his narrative, it seems a pity that his title was not chosen with greater care. The book is splendidly illustrated and is a valuable and interesting addition to the annals of Alaskan exploration. M. R. P.

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* *The Conquest of Mount McKinley.* By BELMORE BROWNE. With 100 illustrations from original drawings by the author and from photographs and maps. G. P. Putnam's Sons, New York and London, 1913. 381 pages. Price, $3.50.

"Yosemite and Its High Sierra"* The many admirers of Mr. Williams' former books, "The Mountain That Was 'God'," and "The Guardians of the Columbia," will even more warmly welcome his recent work, "Yosemite and its High Sierra." Besides the many interesting and even remarkable pictures of the oft-pictured Yosemite Valley, there are scores of views of the alpine country about the Merced and Tuolumne headwaters, of Tuolumne Meadows, the Tuolumne Cañon and Hetch Hetchy, regions whose glories are all too little known by lovers of wild scenery. The five brief chapters comprising the book are fairly packed with information about the Yosemite country, its early history, its geology, and its forests and trails. The book is dedicated to the Sierra Club. Many an outing member by merely opening its pages will find himself transported to those high trails and camps among which his memory so loves to dwell. The book is sure of a wide and enthusiastic popularity.
M. R. P.

"John Knox McLean"† This very sympathetic and readable biography is sure to be of interest to Sierra Club members, especially to those who were privileged to know Dr. McLean during the Outings of 1903 and 1905. In the chapter entitled "The Parson at Play" we are vividly reminded of his genial, companionable presence, so completely harmonious with the spirit of the mountains—"a tall, slender youth of seventy years. . . . Good fellowship, clean mirth and plenty of out-of-doors were all very dear to him." Dr. McLean was one of our charter members and an early contributor to the Bulletin. His work and influence in the Club are perpetuated by a number of our most active members, who owe to him the awakening of their outdoor interest. Mr. Buckham's life story of this widely beloved and noble pastor, so long one of the leading men of his community, should be warmly welcomed by our members. M. R. P.

**Yosemite and Its High Sierra.* By John H. Williams. With more than two hundred illustrations, including eight color plates from paintings by Chris Jorgensen. John H. Williams, Tacoma and San Francisco, 1914. Edition de luxe, $2.50 net; Library Edition, $1.50 net; News-stand Edition, $1.00 net.

† *John Knox McLean.* A biography. By John Wright Buckham. Smith Brothers, Oakland. Cal.. 1914. 122 pages. Price. $1.25.

"YOU AND I"* A recent book of poems by Harriet Monroe contains several charming verses inspired by her days on the trail with the Sierra Club:

"I love the upward ways
To the sun-tipped crest of the mountains
High over the billowy world;
Where the wind sings hymns of praise,
And the snows break into fountains,
And life is a flag unfurled."

"In Tuolumne Meadows," "The Hetch Hetchy," "The River Kern," and "A Sierra Song" are verses of particular interest to Miss Monroe's campmates. But the volume includes poems with a wide range of subject, written with the power, the high idealism, and the grace of expression for which Miss Monroe's work is famous among her many friends. We are all glad to know that her valuable work as editor of "Poetry," the new magazine of verse, does not interfere with the continuance of her still greater work as a poet. M. R. P.

"MOUNTAINEERING AND EXPLORATION IN THE SELKIRKS"† Mr. Howard Palmer's collected notes on "Mountaineering and Exploration in the Selkirks" would be of special value to anyone planning an excursion to the region. The definite location is given of that range of the Canadian Alps known as the Selkirks, and a history of their early exploration. The series of climbs described is of great importance owing to their value in mapping the country. The photographs are well taken and extremely interesting. The climbs cover a period of years between 1908 and 1912. The writer, who is the secretary of the American Alpine Club, deserves much praise for his pioneer work. L. M. R.

"SPANISH AND INDIAN PLACE NAMES OF CALIFORNIA"§ These notes on the "meaning and romance" of California place names are most delightfully presented. The writer has evidently followed many a pleasant by-path into unfamiliar chapters of our early history in her research work, and her notes contain many interesting historical incidents and allusions. The book is well illustrated and should prove very attractive to tourists as well as to Californians interested in the study of their own State. M. R. P.

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* *You And I.* By HARRIET MONROE. The MacMillan Company, New York, 1914. 236 Pages. Price, $1.25.

† *Mountaineering and Explorations in the Selkirks.* By HOWARD PALMER, F. R. G. S. With two new maps and 219 illustrations. G. P. Putnam's Sons, 1914. Price, $5.00.

§ *Spanish and Indian Place Names of California.* Their Meaning and Their Romance. By NELLIE VAN DE GRIFT SANCHEZ. A. M. Robertson, San Francisco, 1914. Illustrated. 440 pages. Price, $2.00.

"The Arctic Prairies"[‡] Ernest Thompson Seton's voyage of over 2,000 miles in a canoe into the region north of Aylmer Lake has for its attractive title "The Arctic Prairies." The writer throws in enough of his field-notes to give the book a scientific turn, but its chief charm lies in the delights of a camper's experiences, carrying beds and provisions over untrodden mountains or on bright river reaches far away from civilization. The journey carries one at first through thick forests where buffalo herds dwell, then farther north to the open prairies, where are found caribou on the extensive heath, bright with summer flowers. "Color, color, color everywhere," well exemplifying nature's garden law, "Mass your color to gain effect."

L. M. R.

"Mt. Rainier and Its Glaciers"[*] Mr. F. E. Matthes of the U. S. Geological Survey has a most interesting pamphlet on the Rainier glaciers, their origin, their course, and their size. The fifteen glaciers each receive individual treatment, with excellent photographs by different artists. L. M. R.

"California"[†] It is rare to find such a balance of excellence existing between text and illustrations as in Mary Austin's "California" and Mr. Sutton Palmer's illustrations, delicate and reserved in coloring. Mrs. Austin has distilled for us the essence of each unique locality in this State of inexhaustible natural wonders and with the vision of a poet described it to us, without, however, sacrificing accuracy of scientific detail. Of that noble adopted tree the eucalyptus, she says: "At all times it has a beautiful resiliance to the wind, bowing with a certain courtliness without compulsion and recovering as if by conscious harmonious effect." Altogether it is a book which will be welcomed by all lovers of California as most worthily setting forth its charms. L. F. O'C.

[‡] *The Arctic Prairies.* By Ernest Thompson Seton. Charles Scribner's Sons, 1911. 405 pages, photographs and sketches and the author.

[*] *Mt. Rainier and Its Glaciers.* Mt. Rainier National Park. By F. E. Matthes. Published by the Department of the Interior. 1914. Price. fifteen cents.

[†] *California, The Land of the Sun.* Painted by Sutton Palmer; described by Mary Austin. New York. The Macmillan Company. 1914. 178 pages. Price. $4.00 net.

PUBLICATIONS OF THE SIERRA CLUB

No. 1.—Articles of Association, By-Laws, and List of Members.

Nos. 4 and 5.—Maps of Portions of the Sierra Nevada adjacent to the Yosemite and to Kings River, 1893.

No. 8.—Table of Elevations within the Pacific Coast, 1895, by Mark B. Kerr and R. H. Chapman.

No. 12.—Map of the Sierra Region, May, 1896.

Nos. 2, 3, 6, 7, 9, 10, 11, 13, together forming Volume I, Nos. 1-8, of the SIERRA CLUB BULLETIN.

Contents of Volume I.—Ascent of Mt. Le Conte; Address on Sierra Forest Reservation; California Outing; Crater Lake, Oregon; Diamond Hitch; Explorations North of Tuolumne River; Forest Reservations; From Fresno to Mt. Whitney, via Roaring River; From Gentry's to El Capitan and Yosemite Falls; Grand Cañon of the Tuolumne; Head-Waters of Kings River; Kern and Kings River Divide; Kings River and Mt. Whitney Trails; Knapsack Tours in the Sierra; Mt. Bernard; Mt. Tahoma; Mt. Whitney Trail; New Grove of Sequoia Gigantea; Notes on the Pine Ridge Trail; Route up Mt. Williamson; Search for a Route from the Yosemite to the Kings River Cañon; Sources of the San Joaquin; Three Days with Mt. King; Through Death Valley; Through the Tuolumne Cañon; Tramp to Mt. Lyell; Upper Sacramento in October; Notes, Correspondence, and Reports.

Nos. 14, 15, 16, 17, 18, and 19, together forming Volume II, Nos. 1-6, of the SIERRA CLUB BULLETIN.

Contents of Volume II.—Ascent of the White Mountains of New Mexico; Basin of the South Fork of the San Joaquin River; Conifers of the Pacific Slope, Parts I and II; Day with Mt. Tacoma; Early Summer Excursions to the Tuolumne Cañon and Mt. Lyell; Expedition of Prince Luigi Amedeo of Savoy to Mt. St. Elias; Explorations of the East Creek Amphitheater, from Mt. Rose to Mt. Shasta and Lower Buttes; Kaweah Group; Lava Region of Northern California; Mountain Trips: What to Take and How to Take It; Neglected Region of the Sierra; Observations on the Denudation of Vegetation—Suggested Remedy for California; On Mt. Lefroy August 3, 1896; On Mt. Lefroy August 3, 1897; Philip Stanley Abbot; Taking of Mt. Balfour; To Tehipite Valley from the Kings River Grand Cañon; Up and Down Bubbs Creek; Wanderings in the High Sierra Between Mt. King and Mt. Williamson,—Parts I and II; Woman's Trip Through the Tuolumne Cañon; Yosemite Discovery; Notes, Correspondence, and Reports.

No. 20.—Volume III, No. 1, pp. 1 to 118—Ramblings Through the High Sierra (Reprinted from "A Journal of Ramblings," privately printed in 1875); Editorial Notice; Ouzel Basin; Forestry Notes.

No. 21.—Ramblings Through the High Sierra. Same as No. 20. (Specially bound; without Editorial Notes, etc.)

No. 22.—Volume III, No. 2, pp. 119 to 188.—Lake Tahoe in Winter; Ascent of "El Yunque"; Another Paradise; Kings River Cañon Trail Notes; Ascent of "Matternhorn Peak"; Reports; Notes and Correspondence; Forestry Notes.

No. 23.—Volume III, No. 3, pp. 189 to 270.—Parks and Peaks in Colorado; The Work of the Division of Forestry in the Redwoods; The Mazamas on Mt. Jefferson; Wagon Trips to the Sierra; The Big Basin; The Re-Afforesting of the Sierra Nevada; The Descent of Tenaya Cañon; An Ascent of Cathedral Peak; A Glimpse of the Winter Sierra; Notes and Correspondence; Forestry Notes.

No. 24.—Volume III, No. 4, pp. 271 to 339.—The Mazamas on Mt. Rainier; Lassen Buttes; From Prattville to Fall River Mills; Zonal Distribution of Trees and Shrubs in the Southern Sierra; Mt. Washington in Winter; Round About Mt. Dana; Notes and Correspondence; Forestry Notes; Reports.

No. 25.—Volume IV, No. 1, pp. 1 to 75.—Joseph Le Conte in the Sierra; El Capitan; Camp Muir in Tuolumne Meadows; The Sierra Club Outing to Tuolumne Meadows; In Tuolumne and Cathedral Cañons; The Great Spruce Forest and the Hermit Thrush; From Redding to the Snow-clad Peaks of Trinity County; Trees and Shrubs in Trinity County; Notes and Correspondence; Forestry Notes; Reports.

No. 26.—Vol. IV, No. 2, pp. 77 to 176.—Into the Heart of Cataract Cañon; My Trip to Kings River Cañon (Reprint); Conifers of the Pacific Slope; Part III; Birds of the High Mountains; Notes and Correspondence; Forestry Notes; Reports.

No. 27.—A Flora of the South Fork of Kings River from Millwood to the Head-Waters of Bubbs Creek.

No. 28.—Vol. IV, No. 3, pp. 177 to 252.—Among the Sources of the South Fork of Kings River, Part I; With the Sierra Club in Kings River Cañon; Red-and-White Peak and the Head-Waters of Fish Creek; Mt. Whitney, Whitney Creek, and the Poison Meadow Trail; A New-Year Outing in the Sierra; The Ascent of Volcano Mayon; Notes and Correspondence; Forestry Notes; Reports.

No. 29.—Vol. IV, No. 4, pp. 253 to 323.—Among the Sources of the South Fork of Kings River, Part II; the Coast Sierra from California to Panama; Ralph Sidney Smith (In Memoriam); Climbing Mt. Brewer; Table of Elevations of Peaks in the Sierra Nevada Mountains over 12,000 feet; Kings River Outing, 1902—Botanical Notes, etc.; Near the Kern's Grand Cañon; Reports; Notes and Correspondence; Forestry Notes.

No. 30.—Vol. V, No. 1, pp. 1 to 85.—The Ascent of the North Palisades; Variations of Sierra Glaciers; How Private Burns Climbed Mt. Pinatùbo; The Hillside Farmer and the Forest; The Notable Mountaineering of the Sierra Club in 1903; On the Trail with the Sierra Club; The Completed Le Conte Memorial Lodge; Reports; Notes and Correspondence; Forestry Notes.

No. 31.—Vol. V, No. 2, pp, 87 to 152.—Mt. Whitney as a Site for a Meteorological Observatory; The Water-Ouzel at Home; The San Francisco Peaks in April; Over Harrisons Pass with Animals; The Ascent of San Antonio; Secretary's Report; Treasurer's Report; Notes and Correspondence; Forestry Notes.

No. 32.—Vol. V, No. 3, pp. 153 to 270.—First Ascent: Mt. Humphreys; Address at Memorial Exercises; Mt. Lyell and Mt. Ritter Ascents by Sierra Club Outing of 1904; A Deer's Bill of Fare; Domes and Dome Structure of the High Sierra; Some Aspects of a Sierra Club Outing; The Evolution Groups of Peaks; Reports; Notes and Correspondence; Book Reviews; Forestry Notes.

No. 33.—Vol. V, No. 4, pp. 271 to 328.—The Grade Profile in Alpine Glacial Erosion; Systematic Asymmetry of Crest-Lines in the High Sierra of California; The Tuolumne Cañon; Inscription for the Le Conte Memorial; Over Harrisons Pass from the North with a Pack-Train; California Forestry Law; Reports; Notes and Correspondence; Book Reviews; Forestry Notes.

No. 34.—Vol. VI, No. 1, pp. 1 to 74.—The Sierra Club's Ascent of Mt. Rainier; Mt. Rainier, Mt. Shasta, and Mt. Whitney as Sites for Meteorological Observatories; The Sky-Line of the Tatoosh Range; Mt. Rainier National Park; The Effect of the Partial Suppression of Annual Forest Fires in the Sierra Nevada Mountains; In Memoriam; Joseph Le Conte; Wild Animals of Mt. Rainier National Park; The Sierran Puffball; Reports; Notes and Correspondence; Book Reviews; Forestry Notes.

All of above are out of print, having been destroyed in the fire of April 18, 1906.

No. 35.—Vol. VI, No. 2, pp. 75 to 152.—An Ascent of the Matterhorn; The Name Mt. Rainier"; The Second Kings River Outing; The Motion of the Nisqually Glacier, Mt. Rainier; Report on the Kings River Cañon and Vicinity; Reports; Notes and Correspondence; Book Reviews; Forestry Notes; Revised By-Laws of the Sierra Club.

No.36.—Vol. VI, No. 3, pp. 153 to 210.—The Aftermath of a Club Outing; Along the Foothills to Lake Chabot; Mt. Rose Weather Observatory; The Ascent of Asama-Yama; Reports; Secretary's Report; Treasurer's Report; Notes and Correspondence; Book Reviews; Forestry Notes.

No. 37.—Vol. VI, No. 4, pp. 211 to 284.—The Hetch Hetchy Valley; To Joseph Le Conte, a Poem; Lake Ramparts; The Grand Cañons of the Tuolumne and the Merced; The Water-Ouzel, a Poem; Photograph of the Water-Ouzel; Bird Life of Yosemite Park; An Easterner's Impressions of a Sierra Club Outing; Indian Pictographs in Pate Valley; Reports; Notes and Correspondence; Book Reviews; Forestry Notes.

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The *Scientific American* Supplement for September 7, 1912, contains an article by J. E. Church, Jr., on "The Conservation of Snow," which is of interest to Sierra Club readers.

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Proceedings of the National Park Conference held at Yellowstone National Park, September 11 and 12, 1911. 210 pp. 15 cents. Contains a discussion of National Park problems by officers of the Government and other persons.

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No. 8.—Table of Elevations within the Pacific Coast, 1895, by Mark B. Kerr and R. H. Chapman.

No. 12.—Map of the Sierra Region, May, 1896.

Nos. 2, 3, 6, 7, 9, 10, 11, 13, together forming Volume I, Nos. 1-8, of the SIERRA CLUB BULLETIN.

Contents of Volume I.—Ascent of Mt. Le Conte; Address on Sierra Forest Reservation; California Outing; Crater Lake, Oregon; Diamond Hitch; Explorations North of Tuolumne River; Forest Reservations; From Fresno to Mt. Whitney, via Roaring River; From Gentry's to El Capitan and Yosemite Falls; Grand Cañon of the Tuolumne; Head-Waters of Kings River; Kern and Kings River Divide; Kings River and Mt. Whitney Trails; Knapsack Tours in the Sierra; Mt. Bernard; Mt. Tahoma; Mt. Whitney Trail; New Grove of Sequoia Gigantea; Notes on the Pine Ridge Trail; Route up Mt. Williamson; Search for a Route from the Yosemite to the Kings River Cañon; Sources of the San Joaquin; Three Days with Mt. King; Through Death Valley; Through the Tuolumne Cañon; Tramp to Mt. Lyell; Upper Sacramento in October; Notes, Correspondence, and Reports.

Nos. 14, 15, 16, 17, 18, and 19, together forming Volume II, Nos. 1-6, of the SIERRA CLUB BULLETIN.

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No. 23.—Volume III, No. 3, pp. 189 to 270.—Parks and Peaks in Colorado; The Work of the Division of Forestry in the Redwoods; The Mazamas on Mt. Jefferson; Wagon Trips to the Sierra; The Big Basin; The Re-Afforesting of the Sierra Nevada; The Descent of Tenaya Cañon; An Ascent of Cathedral Peak; A Glimpse of the Winter Sierra; Notes and Correspondence; Forestry Notes.

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No. 34.—Vol. VI, No. 1, pp. 1 to 74.—The Sierra Club's Ascent of Mt. Rainier; Mt. Rainier, Mt. Shasta, and Mt. Whitney as Sites for Meteorological Observatories; The Sky-Line of the Tatoosh Range; Mt. Rainier National Park; The Effect of the Partial Suppression of Annual Forest Fires in the Sierra Nevada Mountains; In Memoriam; Joseph Le Conte; Wild Animals of Mt. Rainier National Park; The Sierran Puffball; Reports; Notes and Correspondence; Book Reviews; Forestry Notes.

All of above are out of print, having been destroyed in the fire of April 18, 1906.

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Among the recent publications of the University of California, the following may be of interest to Sierra Club readers:

A New Cony from the Vicinity of Mt. Whitney. By J. GRINNELL. (Contribution from Museum of Vertebrate Zoology, University of California.) Univ. of Calif. Publ. Zool. Vol. X, No. 2, 1912. 5 cents.

The Bighorn of the Sierra Nevada. (Contribution from the Museum of Vertebrate Zoology of the University of California.) Univ. of Calif. Publ. Zool. Vol. X, No. 5, 1912. 10 cents.

The Warner Mountain Cony. (Contribution from the Museum of Vertebrate Zoology of the University of California.) Proceedings of the Biological Society of Washington, Vol. XXV, 1912, pp. 129-130.

A New Member of the Perognathus Parvus Group of Pocket Mice. (Contribution from the Museum of Vertebrate Zoology of the University of California.) Proceedings of the Biological Society of Washington, Vol. XXV, 1912, pp. 127-128.

The Outlook for Conserving the Band-Tailed Pigeon as a Game Bird of California. (Contribution from the Museum of Vertebrate Zoology of the University of California.) Reprinted, 1913, from *The Condor,* Vol. XV, January, 1913.

Leucosticte Tephrocotis Dawsoni, a New Race of Rosy Finch from the Sierra Nevada. (Contribution from the Museum of Vertebrate Zoology of the University of California.) Reprinted, 1913, from *The Condor,* Vol. XV, March, 1913.

An Account of the Birds and Mammals of the San Jacinto Area of Southern California. By J. GRINNELL and H. S. SWARTH. (Contribution from the Museum of Vertebrate Zoology of the University of California.) Univ. of Calif. Publ. Zool. Vol. X, No. 10, 1913. $2.00.

A striking panoramic view, in six colors, of Crater Lake National Park is now for sale by the Superintendent of Documents, Washington, D. C. This view shows the park as it would appear to an observer flying over it, the ridges, peaks and valleys being shaded and colored in order to show the relief. It measures 16½ by 18 inches, and has a horizontal scale of one mile to the inch. Price, 25 cents.

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